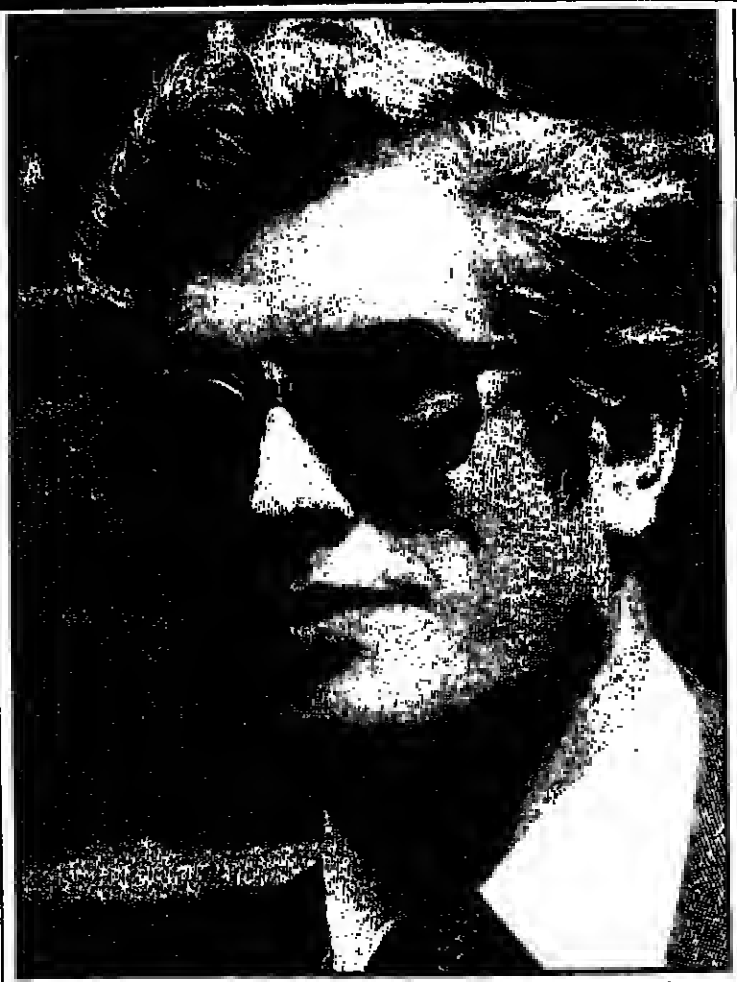


Dirty tricks hit science centre

by Kevin Cahill
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Peter Cooper, the executive responsible for IIASA's affairs at the Royal Society in London, said there was a tremendous smear campaign going on, and he linked the attack with the US Central Intelligence Agency.
Cooper referred to a highly questionable report in an American magazine called *Parade*, which alleged that Russian members of the IIASA staff had used IIASA computer facilities to break into a UK Defence Ministry Cray 1.
The *Parade* article, allegedly based on CIA technical studies, claimed that Soviet experts, working covertly from a private research institute near Vienna (i.e. IIASA), were able to link the computers to one of the world's most advanced computers - the

US-built Cray 1 at the University of Reading in England - and use it to make complex calculations for nuclear weapons design.
The Soviets lack such a computer, and Cray 1 contains highly classified US defence data, according to *Parade*.
But there is no Cray 1 at Reading (*Parade* later amended this to the Atomic Weapons Research Establishment at Aldermaston) and the Soviet Union is reasonably well supplied with Cray-like machines.
Furthermore a physical link between Aldermaston and IIASA does not exist.
According to Professor Buz Hollings, the Canadian director of IIASA, the report had done a tremendous amount of damage.
Hollings agreed that the evidence could be interpreted as a "campaign".
In a diplomatically worded statement, Hollings added: "There is a declared concern on the part of the US government

concerning the transfer of technology to the Soviet Union. To implement such a policy it is obvious that lower level people will uncritically use non-factual material... in pursuit of the policy.
Earlier this year the CIA supplied the external affairs commission of the US National Academy of Science, the US member of IIASA, with a report into security at the international agency.
This classified report was later referred to in the NAS council resolution but the council nevertheless recommended that NAS continue as a member of IIASA.
However, the US government turned down the NAS proposal, and on November 17 it was announced that NAS was withdrawing, along with the Royal Society, from membership of IIASA.
According to Cooper at the Royal Society, IIASA can survive the funding crisis, "but not the smear campaign".



SOUTHGATE... will be co-ordinating information technology work across the Thorn-EMI engineering group.

Japan chip imports leap in US

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And the bad news for the US could get worse, since two of Japan's largest chip makers are planning massive new production for early 1983.
The import figures for the three-quarter stage exceeded the US Semiconductor Industry Association's forecast of Japanese imports for the whole of 1982. It was caused by the US-Japan trade deficit in integrated circuits to jump seven-fold to \$228 million, compared with only \$36 million a year ago.
US chip imports to Japan rose by 38.5% to \$82.1 million in the three-quarter stage, compared with \$59.3 in 1981.
Tony Fine, a consultant with the Luton based Macintosh Consultants, says that in the first six months of 1982 Japanese suppliers took about 70% of the 64K RAM market, and there is little to suggest that this has changed.
However, the overall picture is the US is confused, since IBM and AT&T's Western Electric have massive in-house chip production facilities, and IBM has just lost process.
In Japan, both Fujitsu and Toshiba have announced plans to significantly increase production of 64K devices. Fujitsu, the second largest producer behind Nippon Electric (NEC), will increase production by 36% to three million devices a month by next March.
And Toshiba is planning a 15% jump in production to 1.5 million chips a month.



REYNOLDS... a "mutual commitment" with chip-maker Intel.

Multi-million dollar software hat-trick

by Robert Parry
UK software house Micro Focus this week pulled off a hat-trick of successes starting with a multi-million dollar deal with US micro-maker Intel.
The Intel deal makes the software house the main Cobol supplier for its line of 16- and 32-bit microprocessors. Micro Focus has also taken the veil off a go-faster set of native code generators for Level II Cobol applications and implementation of the same language on 68000-based micros running under Unix.
The Intel deal covers Level II Cobol, the visual programming tool Animator, and Forms-2, which will be available to run under Xenix - Microsoft's Unix implementation - and Intel's RMX 16 operating system. The Micro Focus products will also run on Intel's development systems.
The significance of this agreement is that it is a mutual commitment, says Micro Focus chairman Brian Reynolds. "It is indicative of the fact that the timely availability of software for new environments is seen by Intel as of strategic importance."
The deal will expand greatly Micro Focus' effective sales force, because all Intel salesmen will be trained to the Micro Focus products and will push them. The two

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by George Black
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"The terms of the settlement are a matter between us and the other party and we would not wish to discuss them," said a company spokesman. But he added that friendly relations between the parties were being resumed and there were some discussions about possible future joint projects.
The university said agreement had been reached, but made no further comment.
Manchester had claimed that the 2900 design was heavily based on the MUS product which was developed out of research at its computer science department between 1968 and 1973. The MUS was the product of work funded by a grant of £630,000 from the Science Research Council.
In November 1979 the university announced that it was suing ICL over the invention and that it was a question of recognition more than of money. The case went to arbitration - a private court hearing under a mutually agreed chairman with both legal and technical knowledge - and there bogged

down, to the annoyance of the instigating professor David Edwards and Frank Sumner.
The dispute did not impede ICL from setting up a university research council last July, led by former director Peter Hall.
The new collaborative venture, which now has ten projects in progress in higher educational establishments around the country, is funding research into new architecture and languages, specification and design methodology, expert systems, man-machine interfaces and distributed processing and networks.
Initially about 1/3 of ICL's research and development budget has been allocated to supporting the scheme.
Amdahl has won a major slice of the project to revamp Manchester University's regional computer centre. The company is to supply a 470V/7A, with two 4705 communications controllers to front-end the main computer system.
The regional centre is a major Control Data user, with two CDC 7600s and Cyber 170. The present front-end system is provided by ageing ICL 1900 series machines, which are nearing the end of their lives. And in April 1983 the two CDC 7600s will be supplemented by a CDC Cyber 205 supercomputer. The ICL front-end would not have been able to cope with the increased workload.
ICL did not tender to provide the replacement system.

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INFORMATION technology will receive £14 million out of the Department of Education and Science's £12,548 million budget for 1983-84.
This figure was announced recently by Sir Keith Joseph, and a further announcement giving a more precise breakdown of this figure will be made soon.
Some information is available now, and the cash will reach all areas of further education. About £10 million will go to universities to cover recruitment of additional young researchers and lecturers, and to fund new courses in information technology from autumn 1983.
Another £2 million has been allocated for expanding courses in advanced further education.
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Welsh market info service to expand

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Although the Mid-Glamorgan initiative has given a lead, Edwards considers that there is need for a considerable widening of the kind of information provided.
The aim of an extension would be to create a place of contact with all the technologies, financial, commercial, government and university services.
Once areas have become identified as places with potential for expansion and technological change, Edwards is convinced that a wide range of associated commercial enterprises will spring up around them, as has been the experience in Massachusetts.

Scicon and Thorn-EMI hit the services big time

TWO computing services companies have jumped to the top of the UK league - with a little help from their giant parent companies.
Scicon, an offshoot of BP, can now claim an annual turnover of £100 million as a result of the oil giant's reorganisation of its computer activities.
Scicon International is now, according to a spokesman, the UK's largest computing services company and the second largest in Europe and tenth in the world.
And Thorn-EMI has constructed a £55 million a year information technology division by combining the Datasolve bureau and Software Sciences, both acquired from BOC in April, with Thorn EMI Datatech, which makes tape drives and modems.
Colin Southgate, Software Sciences' founder, is the head of the new division.
He said: "I will be co-ordinating information technology work across the engineering group. Information technology accounts for about £100 million of the group's £607 million turnover if other activities such as micro distribution are included.
"And we do £140 million worth of business in defence systems. There are opportunities for collaboration across division boundaries."

companies will also exchange technical information in advance.
Such information exchange will allow quicker release of Cobol compilers to run on Intel's new chips. A version to run on the 32-bit IAPX 386 can be expected soon after the chip appears from Intel.
There have been links between the two companies in the past - for example Micro Focus was the first independent supplier in Intel's Vendor Supplied Product Programme in 1979.
The marketing link opens up many opportunities for Micro Focus. "The important thing is to get software budgeted into projects right from the start," says Peter Hewitt, Micro Focus' marketing manager.
The new offerings from Micro Focus extend the company's range in the market. The scope for 68000/Unix machines as powerful workstations is increasing rapidly, with people looking to them to develop programs which can then be sent, in Cobol code, to run on mainframes.
And speed is in everyone's mind in the software business. The two native generators, for the 8086/88 and the 68000, allow faster running of application programs and, since the Cobol compiler is itself written in Cobol, faster compilation.

Last site to join satellite experiment

LAST of the seven sites in the Science and Engineering Research Council's satellite and local area network experiment, Project Universe, is expected to have its links operating within the next few weeks.
Universe (Universities' Expanded Ring and Satellite Experiment) was set up last year as an academic project, but it soon attracted backing from industry.



TRICKETT... "Waiting for DoI".

CAD offer

THE British Technology Group is this week debating whether to accept an offer from US CAD giant Computervision for its CAD company, Compeda. The bid is said to be in the region of £5 million and is understood to be significantly higher than rival offers from Tektronix, Prime, and Xtrak. Compeda managing director Keith Trickett said that a decision would have to be made soon: "We're waiting for the DoI to make up its mind and it will have to be soon, out of trade necessity."
Next week too late - page 48.

BT sale

THE sale of British Telecom is at least 18 months away, Industry Secretary Patrick Jenkin said at the second reading of the Telecommunications Bill on Monday. "But I have already asked BT to start the necessary preparations," he added. Shadow Industry Secretary Stan Orme said the Bill would have "a devastating effect on our most modern industries and services".

400 redundant

VOLUNTARY redundancy has been offered to 400 engineers at Standard Telephones & Cables' North London and East Kilbride plants as a result of the company's withdrawal from the System X digital telephone network development team in October. The redundancies may become compulsory if not taken up by the middle of next year.

THE world's biggest computer manufacturer is poised to make a major change to its approach to software. For the rumours are that IBM has pens and word processors poised to do a third party licence deal with as yet unnamed software houses. This is a major departure for the company as it has always insisted that it knows best what should run on its mainframe machines.
People in the know are looking at Management Science America, the US's biggest commercial software company because it pulled off the deal to provide software for the IBM personal computer through its subsidiary Peachtree.

IN A world of staggering claims, here is one from David James, inventor of The Last One, that takes some licking. He claims to have found a simple mathematical formula for compressing 125 Gbytes of information into just 2.5 Kbytes. And of this, only 1/4 Kbyte will be used for actual storage - the rest will hold details of the encoding process. James says he is trying to sell copyright of the idea, called Hyperspace, to big US companies like IBM. Watch this space.

THE US government computer procurement department plans to increase the number of approved micro suppliers tenfold and let the foreign hordes in. The General Services Administration, responsible for the acquisition of all non-military computers for government use, currently recommends just four manufacturers, Apple, Hewlett-Packard, Osborne, and Xerox. The GSA plans to seek bids for 40 by the end of the year.
The scheme will mean that foreign manufacturers will be able to compete with indigenous firms on the same basis as US companies. But

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Thursday, December 2, 1982 Number 838 35p

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"And we do £140 million worth of business in defence systems. There are opportunities for collaboration across division boundaries."

At Scicon International some three-quarters of the revenue now comes from overseas. The £100 million figure includes earnings in France (32%), the UK (27%), West Germany, (23%) the US (18%) and the Middle East. It was boosted by the acquisition last year of the Californian Systems Control Incorporated for \$10 million.

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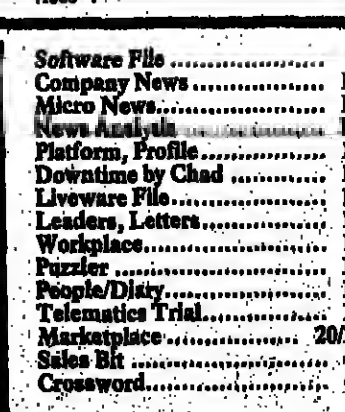
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Maintenance - matter of survival in the field

by John Kavanagh
THE unglamorous business of computer maintenance could be all that stands between survival and failure for many computer companies as sales are hit by the recession.

So says a report on field service by the research firm Input, which shows how important the maintenance and repair business has become to computer suppliers.

The report says field service now accounts for a fifth of equipment suppliers' income in the US and is growing far more quickly than the hardware market.

Spending on field service is increasing by 19% a year and will top

\$9,000 million in the US in 1982, says Input. By contrast computer systems suppliers are growing at only 13%.

The difference in growth is even more significant in terms of profit, says the report. Field service income is less likely to be hit by recession than sales.

One area where suppliers could make more money is software maintenance. The report says software maintenance is seriously underpriced and could become the main source of new growth in field service over the next five years.

* 1982 Field Service Annual Report, (199p, £2,000, Input, Airwork House, 35 Piccadilly, London W1V 9B.

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French Prime Minister criticises UK ties with Japanese companies

Britain cool to call for closer European links...

by Jack Gee and John Kavanagh
THE French government has criticised the UK's ties with Japanese companies and is to call for closer co-operation between European firms - to the extent of setting up joint subsidiaries to rationalise the production of computers and electronics.

But the co-operation proposals, due to be put to a European summit by French President Francois Mitterrand this Saturday, has had a mixed reception from companies on both sides of the Channel. The memory of Unidata - the disastrous joint subsidiary set up in the Seventies by the main computer

companies in France, Germany and the Netherlands - is apparently still fresh in the minds of industry leaders across Europe.

Speaking to the Franco-British Chamber of Commerce last week, the French Prime Minister, Pierre Mauroy, took the UK to task for allowing Japanese firms to invest \$1,400 million in Britain compared with the £280 million which France had allowed.

He said the UK and France could move ahead together in robotics and data processing.

"It is dangerous to press ahead with unco-ordinated industrial policies," Mauroy said. His government

was to encourage smaller firms to invest in the UK and other European countries with a relaxing of foreign exchange controls. This would increase the chances for co-operation.

French observers believe France wants fully-fledged negotiations between BBC members on the reorganisation of companies on a European scale, with companies like ICL, Olivetti, Philips, Siemens and Thomson-CSF forming joint subsidiaries.

But even French companies doubt the potential of such moves. "We are very open to co-operation at a European level but on individual projects rather than through

joint subsidiaries," said a spokesman for the French computer manufacturer CII-Honeywell Bull. "We don't want another Unidata."

The spokesman said areas for co-operation could include peripherals, programming languages and database management systems.

ICL agreed, again with a reference to the ill-fated Unidata. "Everyone would like co-operation but it must have a strong commercial foundation," said an ICL spokesman.

The multinational is always looking for areas for joint development. She added that ICL's French



MITTERRAND... To call for closer links

'Computers could speed boundary changes'

by Philip Hunter
IT TOOK the Boundary Commission six years to complete a controversial shuffling of parliamentary constituencies. Computers had been used - but not for such work in the UK nearly 20 years - the task may have been over in 15 months.

This claim was made by a subsidiary of the Labour Party's application for an initiative to stop the new constituency boundary proposals being submitted to the House of Commons. Labour fears it will lose many seats if the recommended changes are implemented.

The claim was based on a study carried out at Sheffield University by Professor Ronald Johnson, a specialist in electoral geography. His supervisor could have done the electoral redistribution with no more than 5% discrepancy in the population of all the UK's parliamentary constituencies.

At the hearing, the Judge, Robert Megarry, said he could not see how hard facts could be used to decide what was a fair and equitable redistribution.

Johnston points out that the system of dividing the country into constituencies is not a science. "We just list all the constituencies and it is up to the administrator to decide whether 5% is too great a disparity," he says.

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FITZPATRICK... Convinced of Japanese plans for world mastery.

Micro makers call for ban on imports

by Andrew Thomas
BRITISH micro manufacturers are calling for a 12 month embargo on imports of Japanese and US machines.

In a strongly-worded letter to the Prime Minister, the British Microcomputer Manufacturers Group, which claims to represent more than half the UK micro industry, last week demanded that the ban on foreign machines and the automatic inclusion of British firms on the approved supplier list issued by the CCTA, the government's advisory board on computers.

The spokesman for the micro makers' group, Tom Fitzpatrick, managing director of LSI Computers, claims that the UK is faced with the virtual elimination of its indigenous microcomputer industry if the flood of Japanese and US micros is not stemmed.

Fitzpatrick is convinced that the Japanese are seeking nothing short of world domination. "From day one, Japanese products are priced to ensure domestic market dominance," he said. "Estimates and targets for global market mastery are set years in advance of the marketing onslaught, and with cold, almost surgical precision, the victim countries are subjected to the treatment."

The BMMG maintains that the US companies pose a threat in the size of their domestic market and hence low-cost products.

"The Americans have an insatiable appetite for technology," said Fitzpatrick. "Who coupled to the progressive and far-sighted American venture capital community, this ensures that American com-

panies can enjoy extremely high production runs from day one, just to satisfy home demand."

But the UK industry is not fully behind the BMMG demands. Cambridge-based Torch Computers, which exports over half its production, is opposed to the move. It is not a member of the group.

Torch chairman, Martin Vileland-Boddy, believes that British micros are good enough to compete in a free market.

"The British computer industry has the very best in technology, expertise and management," he said. "I am disgusted that some of our competitors believe that the only way they can survive is by persecuting foreign products."

And Vileland-Boddy has harsh words for the instigators of the move. "These proposals do not reflect the views of the industry at large, but only those of a few ill-managed and less competent companies whose foresight ends at their bifocals," he alleged.

"They expect to make their fortunes not from good products and aggressive marketing, but by closing the door on other countries' technology, which, if better, should serve to give us all a good kick in the backside."

Torch is also concerned that import barriers in the UK would inevitably lead to overseas markets imposing restrictions to the detriment of British exports. BMMG member Clive Sinclair was conspicuous by his absence at the Press conference where the group announced its plans, and did not vote in support of the proposals.

"We don't want to see anything which will damage trade," he said. ■ See leader, page 15

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Bail-out plan for Magnuson

by Howard Karten
MAGNUSON Computer Systems has gained a reprieve from its financial problems with a bail-out led by venture capitalist William Hambrecht, partner in California's venture capital firm Hambrecht and Quist.

A group led by Hambrecht and Quist has bought a \$21 million secured debt from the Bank of America for \$4.5 million. This leaves the Bank of America poorer by \$16.5 million - but presumably wiser - and takes some of the financial pressure off the troubled computer company.

Magnuson's financial problems in recent years include losing between \$3 million and \$4 million in its second quarter ended June 1982.

In addition its founder Paul Magnuson, recently left the firm.

Recently a group of lenders, including the University of Rochester (New York State), the Broadstone Investment Trust and Byte Management Corporation, bought out the Bank of America's stake in Magnuson.

Sperry stems the UK slide

ORDERS of £10 million in the last two months are cited by Sperry Univac as proof that it has stemmed the slide in its UK business.

A report in Computer Weekly last week, based on internal Sperry documents used for budgeting purposes, showed a heavy shortfall in actual orders against plan.

Marketing director John Pascoe said: "The story of our performance over the last two quarters is basically correct, that in common with other manufacturers we experienced a downturn in orders."

But Pascoe emphasised that Sperry Univac made an audited profit in the UK of £1.4 million for the fiscal year ended March 1983, a fact confirmed by documents

filed at company house. The internal management documents incorrectly suggested a loss for that period.

Along with the upturn in orders for the last two months, Pascoe said, "Univac, over the years, has always experienced a very buoyant last quarter, and because of our recently announced products, the 1100/90, System 80 Model 8, Sperrylink Office System, in addition to our enhanced Decision Support software, we are confident we will beat last year's performance."

Pascoe listed clients which have recently placed orders with Sperry Univac, including BP, Surrey County Council, Ford, Rediffusion, Trustee Savings Bank,

Metropolitan Police, Baa, National Bus, Jermoy Industries, Infotro, and Redditch Borough Council.

Last week's report indicated that the company's order bookings at the end of fiscal 1982 were less than 60% of the plan for the year, and that for the first six months of fiscal 1983 bookings were some £11 million against a full year plan of £56 million. The figures were based on the internal budgeting documents, which Pascoe says are not an accurate tally.

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THORN... "A desperate need to develop new industries"

...but EEC chief wants technology collaboration at Community level

by John Riley
A CALL for collaboration in high technology at a European Community level rather than a national level was made by Gaston Thorn, president of the EEC, in London last week. He was speaking at the publication of a report on the impact of British membership of the EEC over the last 10 years.

"The present recession is not a temporary downturn in our economies. Let there be no mistake about it. We are in a period of fundamental transition. We cannot base our collective future - as we have in the past - on the success of our heavy industries."

"There is a desperate need to develop new industries in the service and high technology sectors.

This is best done at Community level rather than country by country."

The attitude of the EEC is that the new industries are important for the future and the problem is how best to exploit them. It has a £260 million market and should be able to emulate Japan and the US. The Esprit programme (European Strategic Programme of Research in Information) to develop an infrastructure for semiconductor chip manufacture is seen as an important watershed in European collaboration towards challenging Japanese and American dominance.

Asked specifically about the plans the EEC has to support the European microchip and computer industry, bearing in mind outside

competition, Thorn replied, "We are falling behind not because we are not able, but because investment is needed."

He then hinted at current developments: "The way ahead is through collaborative research. The approval of the Council of Ministers is needed and 10 proposals are currently on the table. We hope to get an agreement to start next week in Copenhagen at the European Council. We can't be too ambitious at the beginning, and we must first put our proposals on the table."

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Edinburgh gets two new info centres

by John Riley
TWO information centres have opened in Edinburgh this week to encourage closer links between Scotland's "Silicon Glen" - a central lowlands area - and other sectors of the microelectronic-based industry - and other sectors of the microelectronic-based industry.

They were set up at the Edinburgh headquarters of Integrated Micro Applications, a company established by Hewlett-Packard and Edinburgh University to encourage technology transfer to encourage technology transfer.

The funding is from the MAP awareness scheme.

The first is a microelectronics centre which provides an information service and exhibition area, and also working demonstrations of a wide range of electronic hardware and systems.

The other centre, the VLSI microsystems centre, is planned for Britain, and is to be opened in Scotland. It provides a source of information and guidance to prospective users of microcomputers in Edinburgh and East Scotland.

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Labour pledges aid for computers

by Kevin Pearson

A FUTURE Labour government would increase its investment in the computer industry and press for closer links between industry and the universities, according to Geoffrey Robinson, Labour Party spokesman on science and technology.

Robinson says: "The government has ruined Britain's research base with its education cuts. The cuts are not working as they were meant to. Areas in which we should be investing, such as micro-electronics, and hardware technology are being badly hit".

And Robinson is highly critical of the government's efforts in

turning existing research and development into industrial and commercial benefit. "The amount of effort going into transferring that technology into industry is pitiful compared to what our competitors are doing."

Robinson believes the government should be strengthening Britain's position in the international computer industry. Instead, he says it is weakening our industrial base. The UK computer industry should, like the French, be heading for independence of the rest of the world, instead we were "heading for total dependence".

A future Labour government, he says, would be committed to continued funding for both Inmos

and ICL, but with organisational changes in both companies.

"There is a strong case for having a strong national chip manufacturing capability," Robinson says. "National interests should override narrow profit interests".

He is critical of the Alvey Committee's response to the Japanese fifth generation computer project. Robinson says the report lacks coherence. "It stated the most obvious points about the British capability and government funding. The idea that we can develop a software industry without hardware is illusory. We have good software facilities in this country, but without hardware as well we will lose even that."



ROBINSON... "Government has ruined research base".



WINN... Building up a database for analysis.

'Deck-top' system for the Americas Cup

by George Black

A "DECKTOP" computer is coaching the British sailing team challenging for the 1983 Americas Cup in the Bahamas.

The ICL Perq, which is more used to being on desks than decks, is being used to monitor the sailing performance of the 11-man crew from a motorboat that travels alongside. It has had to survive high seas, with swells that cause the boat to roll through as much as 40 degrees.

At present the monitor is being put on the 1977 and 1980 challenger the Australia in an attempt to set up a standard for comparison. The British challenger Victory is under construction after a decision was taken in October to abandon the old Victory as too slow. The new boat should be ready by April and computer testing will go on up to the race in September.

The syndicate's consultant Dr. Graeme Winn, a statistician, said in Nassau this week: "We are still building up a database for analysis and there is a long way to go yet. But we can already see that the information will be a great help in developing a strategy."

The 45-foot motor boat receives data from the Australia by radio link. Wind speed and direction, boat speed and position, sea conditions and sail movements are all being monitored.

Data is stored on disc files. The Perq has been mounted in foam rubber within an aluminium box, itself cased in foam rubber. The US won the sailing trophy in 1971 and has never lost it since.

"We're using real time systems to look at the problem in a dynamic way and we're hopeful that the computer may help us to win the cup for Britain for the first time," said Winn.

Systems firm links DG, ICL

A NEW systems house set up by Lansing Bagnall, the multi-million pound forklift truck group, and consultancy Gresham Computer Services, aims to move into the Data General-ICL systems area.

The new company, called Lansing Gresham, has taken six months to get ready for launch and already has as many orders as it can handle, about £300,000 worth of business.

"We are looking to move into the business of linking Data General interactively with ICL mainframes," said managing director Steve Dowling.

Orders were expected in the region of £40,000 to £100,000 each and Dowling has set a target of at least £750,000 in the first year of trading. "We ought to double that

in our second year," he said.

Technical director for the firm will be Steve Purchase, who said: "Gresham had a good record in software built up over ten years, but it was not very strong on the marketing side. We wanted to diversify and the Lansing Bagnall group should give us the facility to do so."

Lansing Gresham will set a fixed price for hardware, software and systems implementation. Purchase said: "We will be very pro-Cobol and all our work will be done in that language. But we don't reinvent the wheel. We will be mostly modifying existing packages and moving them up-market."

The company will have around 100 staff at its disposal.

Abies breaks into GP micros scheme

SYSTEMS house Abies Information has won its fight for recognition by the Department of Industry's £2.5 million programme aimed at putting microcomputers in 150 medical general practices.

Four of the company's Abies 20/256 systems have been bought by the department at a cost of £80,000 for installation by general practitioners.

The department's scheme was announced in June, but involved systems from just two of the dozen companies in the market: CAP and British Medical Data Systems.

Tim Benson, managing director of Abies and chairman of the General Practice Computer Suppliers' Association, said that the scheme was "grossly unfair" and would freeze development by other companies.

Last week Benson stood by his "grossly unfair" statement and said Abies had worked through other Department of Industry schemes to get the contract. The order was placed through the Support for Innovation programme, under which the department backs development work, or

buys complete systems for evaluation. But the Abies systems will be evaluated as part of the micros-for-GPs scheme.

"After the launch of the GPs scheme we have had great interest and pressure from other companies," said a department spokesman. "We have decided to include Abies in the evaluation programme and we are considering applications from other system suppliers."

The spokesman added that there had been 800 applicants from general practices for the 150 systems. These were being sifted by the Department of Health and Social Security.

Abies system is based on the South-West Technical Products new S Plus multi-user microcomputer running the Unix-like Unix operating system from the US firm Technical Systems Consultants. Software includes the Mickie patient interviewing system from the National Physical Laboratory.

Benson said a weakness of the micros-for-GPs scheme was that the two preferred systems were single-user only.

'Retrieval package for under £10,000'

TWO text retrieval packages have been announced. A Nottinghamshire team of five claims to be able to install a system for less than £10,000 compared with £25,000 for most similar mainframe systems up to now.

And the Atomic Energy Research Establishment package Status has now been made available for Data General MV Eclipse computer users.

The text system — one which permits sifting masses of data for records that match vague criteria — marketed by Delta Design and Graphics, an independent company in Newark, is called Strix.

Designed by Tony Kent, it runs on SWTP (South-West Technical Products) micro S-O-9, the Motorola 6800 based machine with up to 240 megabytes of storage and a capacity for 32 terminals. The operating system is a Unix look-alike.

"Some of the very fancy things that retrieval systems have offered in the past have been cut out, as we don't think many people would want them," said Delta's Jenny Knowles-Leak.

"An important point about Strix is that it can be 100% indexed. Or the index can be cut down by using a stop word list, so that only 2,000 out of 32,000 terms could be searched for."

The firm, which began three years ago as a bespoke software house and has moved increasingly into the package area, had a turnover last year of £100,000 and is hoped to grow to £250,000 next year.

Delta cites as applications the holiday business, where it might be needed to look up all four-star hotels with both air conditioning and a sauna, or solicitors' offices, where it might be needed to look up legal procedures in rare or complicated cases.

A single-user Strix system, hardware and software, will cost £8,000; the software itself £950; and for multi-user systems costs rise to around £20,000.

Harwell's Status package has been converted by IAL, a member of the CAP-Gemini-Sogeti group.

The project manager for the Status at IAL, Peter Bartlam, said it could also be interlinked with word processors, microfiche and office automation systems. The new package will cost £25,000 for a one-machine use, with discounts for multi-machine installations.

IAL gives as an example of its application the Hazchem database, whereby emergency services can search for the name of a hazardous chemical in order to deal with it.

SALES BRIEF

Sperry beats IBM to car contract

A SPERRY Univac 1100/40 frame has knocked out the IBM System 34 at BMW Automechanika's headquarters in Munich, West Germany. The £2 million order includes 92 terminals. The computer will handle jobs related to the leasing of cars over three or four years to BMW's mobile Leasing's 30,000 customers.

CMC installation

AMERICAN Can UK is using its computing from financial applications into the manufacturing area with the installation of a CMC Sequoia 32-bit minicomputer. The machine will replace the existing industry company's CMC 400 in a network of 30 local and remote terminals. The number of terminals is expected to double in these developments.

Logica contract

LOGICA has won a £500,000 contract from British Telecom to use it for experiments in digital coding of colour and stereo systems used for teleconferencing. Logica's system will reduce the bandwidth needed in sending TV pictures by sending only the moving parts of them to be coded.

Network doubled

INTERNATIONAL Communications Clearing House is doubling the size of its terminal network with a £500,000 order for 150 IBM-compatible 3280 displays and 100 communications processors for ITT Business Systems. The 30 will replace IBM 370s which are too small for the enlarged network. The terminals are used in transactions in the City's stock markets for clearing through an IBM 4341 computer.

System 34 order

AN IBM System 34 computer running ledgers and stock control has been ordered by Ryland Vehicle part of the Ryland Vehicle Group with interests in vehicle distribution, engineering and haulage. The package, Dealersman, is supplied by Distributive Computer Systems claimed to be the UK's leading supplier of standalone systems to the motor trade. It has over 15 dealer clients.

Data capture

A £200,000 contract for a data and data capture system has gone to Automation and Technical Services from the Mersey Regional North Wales Electricity Board. Based on two Digital Equipment PDP-11/23 minicomputers, the system will enable the board to control the electricity supply work in three of the board's regions through two colour graphics terminals.

Viewdata link

A VIEWDATA communications link for the Travelodge agents' network is being developed by systems house Micro. The contract covers a link on the Videopac computer which will enable travel viewdata terminals to access reservation systems directly.

TSB in-house

A MOVE from a bureau modelling service to an in-house computer for TSB Bank has brought in a new modelling service. The bank will run its TSB Equipment MAX-UTP in-house operation to cut the significant costs of using a bureau.

The new GEC 4150 is the foundation on which systems houses can build a future for themselves and their clients.

PREDICTABILITY. GEC 4150 supports nine high level languages enabling all your existing programmer skills to be used.

By operating a unified system throughout the GEC 4000 range, moving up doesn't mean relearning.

And by running both 16 and 32 bit programs, the GEC 4150 enables you to plan for the future.

LOW COST. GEC 4150 configurations start at £9250 (end user price) and new

package systems make configuring simple.

Special environment costs are eliminated by Winchester disc technology, and by supporting up to 16 terminals and 160Mb of disc, the GEC 4150 has power in hand for the most exacting tasks.

BIG COMPANY SUPPORT. Served by GEC field maintenance direct to your customers throughout the UK to eliminate your support risk, the GEC 4150 is backed by one of the world's largest high technology engineering companies.

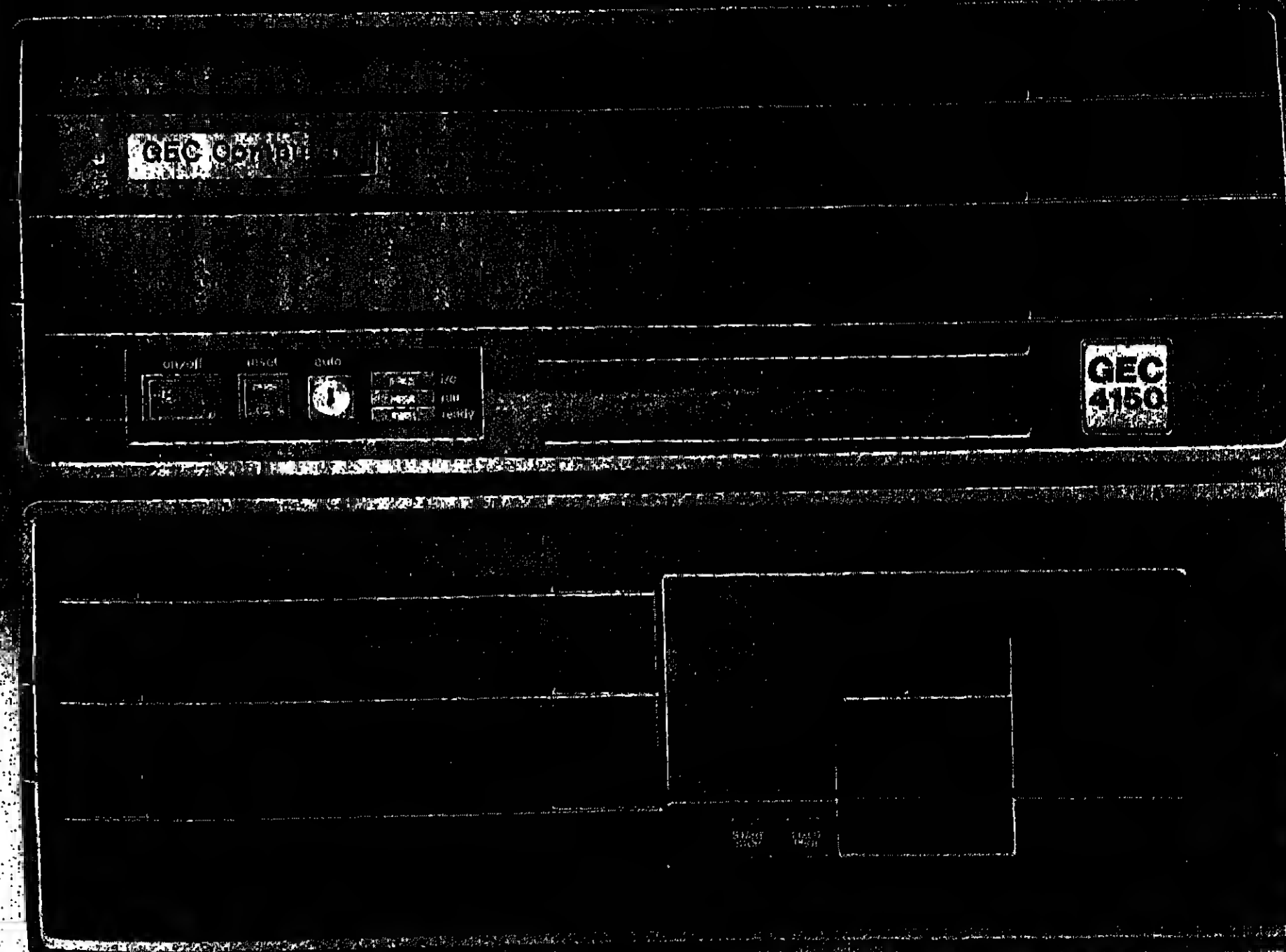
With all the features neatly packaged in a desk-mountable assembly the new

GEC 4150 can generate repeat business. Call us in Manchester (061-872 3433), Birmingham (021-327 1829) or London (01-953 2030 ext. 3187). Let's build a future together. It's as easy as ABC.

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French set up a databank on 100,000 wanted terrorists

Secret service told: Switch kit

by Jack Gee
THE French government has ordered the national intelligence service, the Direction Generale de la Securite Extérieure (DGSE) to replace foreign equipment by French-made computers at a time when a databank of 100,000 wanted terrorists is being set up in France.

Funds for purchase of the CII-Honeywell Bull computers will come from the DGSE's 1983 budget of £30 million, which shows a 9.6% increase over this year.

The increase will be higher because Prime Minister Pierre Mauroy is making extra cash available to the DGSE from the government's secret funds.

The French intelligence service has been using rented foreign equipment - believed to include powerful IBM machines - for stockpiling and transmitting information since 1974.

After President Mitterrand's Socialist administration took over last year, secret service chief Pierre Marion was ordered to prepare a three-year plan to give data processing a wider role in intelligence activities.

Marion reported that France was lagging far behind the US and West Germany in introducing information technology into its intelligence operations.

DGSE computer experts originally recommended the purchase of foreign equipment which was cheaper and more readily available than French computers for this task.

But the Defence Ministry argued that, even for a higher financial outlay, it was wiser to introduce the new computer network at a slower rate in order to ensure that only French machines and software were used.

French officials say they are be-

ing careful to ensure that foreign agents cannot acquire the electronic keys to the network and access national defence and security secrets.

Many of the DGSE's files are still manual and a major task of feeding them into new databanks now lies ahead.

Defence Minister Charles Hernu has told the DGSE that, if the funds allocated in the 1983 national budget and from the Prime Minister's treasure chest are not sufficient, a budget "bonus" will be made available later in the financial year to speed the creation of an efficient computer network.

President Mitterrand announced the creation of the national databank of terrorists in August, immediately after a massacre by Arab terrorists in a Jewish restaurant in Paris where six people died.



PREMIER MAUROY... Extra cash from secret funds.

Govt funds directory of courses for employees

by John Riley
AN electronic directory to help employers find courses for their employees is the latest prong of the £10 million Department of Education and Science Pickup programme.

The directory will be developed by Guildford Educational Services over two years at a cost of £225,000. It will record up to 20,000 further education courses and is expected to run on a self-supporting basis by September 1984.

The Pickup programme was set up last May to stimulate the development of self-career vocational courses. Other projects funded about 20 two-year projects funded through the Further Education Curriculum Review and Development Unit, several of which involve computing.

Fifteen regional one-day workshops are taking place to bring together industry, college and local authorities to examine the practicalities of servicing industry.

CDC into micro software market

by Kavan Pearson
CONTROL DATA has moved into the microcomputer software market in another of its joint ventures. The company has taken a 21% stake in California-based Star Computer Systems in a bid to win a major slice of one of the fastest growing software markets, business packages for microcomputers.

Star sells a range of business packages for the CP/M, MP/M and MS/DOS operating systems including payroll and ledger packages. MS/DOS is fast becoming a de facto standard and is offered on a growing list of micros, from the IBM Personal Computer, for which it was originally designed, to the latest Japanese micro, Hitachi's M316000.

According to Bill Webster, president of Star, the company plans to increase its sales of micro software to \$5 million in 1983, with the aid of CDC's managerial and financial strength. CDC has



WEBSTER... "\$5 million micro software sales in 1983".

placed a \$250,000 order for Star software, and is considering marketing it through its 100 business centres in the US.

As part of the deal several CDC executives have taken up posts on

Star's board of directors. Jim Hart, a former CDC marketing executive, becomes vice-president of Star. Bob Bender, president of Control Data Capital, also has a directorship.

Big IBM users favour PCMs

by Kavan Pearson
BIG IBM users are the most likely to make the move to plug-compatible machines, according to the latest Xephon consultancy survey.

A sample of 200 sites in the UK and Europe showed that 54% of sites now have multiple CPUs, and that these sites are 11 times more likely to use plug-compatible kit than single CPU sites.

Large and medium-sized sites (IBM 4341 upwards) are more likely to use PCM kit than the users of smaller machines (4331, 4321 and the smaller System 370 series machines). At sites with four CPUs 33% of those surveyed have PCM mainframes.

Xephon concludes: "Few users are prepared to put all their eggs in the PCM basket, but a number may be prepared to make a saving on a second machine to run alongside their IBM machine." The proportion of single CPU sites having a plug compatible machine is only 7%.

In terms of operating software the

major change is that a "significant" number of OS/VS1 sites have switched to MVS following IBM's decision in the latter part of 1980 that OS/VS1 was no longer a "front-line" operating system.

Another significant fact revealed by the survey is that "VM has been introduced into a great many more of the larger DOS sites". In fact VM is used in 86% of the medium machine sites, while DOS has a penetration of 70% and MVS 68%.

The report states: "A significant number of sites run more than one operating system. In most cases the extra operating system is VM; there is, nonetheless, a significant overlap between VSI and MVS."

The report finds this surprising because "DOS and MVS are at opposite ends of the power spectrum with completely incompatible JCL (Job Control Language)."

A possible reason for this and for the increasing penetration of VM is that many medium scale users are

thinking of moving into the big processor league and are using VM as a stepping stone.

Xephon explains: "It seems likely that a conversion from DOS to MVS will become necessary at some stage since it appears (a) that IBM has no plans to enhance DOS further and (b) DOS as it is now will not be powerful enough to drive the next generation of hardware (the 4300 replacement)."

With regard to MVS, the survey shows substantial caution among users on the move to MVS/Extended Architecture (MVS/XA), which IBM announced in 1981 and which is being tested at the moment, prior to commercial release in the first quarter of 1983.

Of the 200 sites surveyed none is prepared to take MVS/XA at first release, and only one will move within the first year.

*The Mainframe User is available from Xephon Technology Transfer, King's House, King Street, Maidenhead, Berks. 44pp. Price £19.50.



MARTINEZ... "Excellent team".

'Patent law changes may threaten IT investment'

by George Black
THE FLOW of investment into new technology could be halted, if changes to international patent laws are forced through by the United Nations, according to a pamphlet from the ginger group Aims of Industry.

Kenneth Daly, writer of the pamphlet, told Computer Weekly: "A lot of the good work done by Information Technology Year could be undone. We see this as a very serious threat."

The developing nations lobby, the Group of 77, is arguing the case at a current Geneva conference, for sweeping changes to patent regulations, says Aims of Industry. One proposal is that 30 months after a licence was granted to a multinational corporation the licence should also be granted to an individual or firm in a developing country.

The developing country could force this to happen if it proved that the patent owner had failed to manufacture the invention locally, according to the pamphlet.

"Large amounts of money have to go in research and development for any new product and companies will only invest if they can be guaranteed a reasonable return," said Daly. "Patent rights are therefore absolutely fundamental."

It is the Aol's view that the patent changes would slow the process of technology transfer to the world's poor.

The US has taken a strong line against the pressures for patent law changes, but some European nations, including Britain, have seemed willing to acquiesce, according to Daly, who believes that Russia is seeking a propaganda victory by blaming the West for exploitation of the Third World.

Last year the total of British patents was over 400,000. Some 6,000 new British inventions were patented during 1981.

Professor Sandy Douglas of the London School of Economics said: "There will have to be a compromise. We can't go on getting richer while other nations get poorer. But there must be some kind of law, otherwise why should anyone bother to develop technology?"

He did not foresee radical changes in international conventions in the near future.

"The issue could create some strange bedfellows," he observed.

VDU maker wins industry achievement award

by Philip Hunter
A MAKER of colour display terminals picked up a £15,000 cheque as outright winner of the 1982 Industrial Achievement Award for Small Businesses.

Microvitec of Bradford was chosen from ten regional finalists for building up a £2.5 million business with 100 employees in just two full years of trading.

Chairman Tony Martinez established the company to make and sell colour VDUs at the end of 1979, and at once picked up a £45,000 Department of Industry development grant.

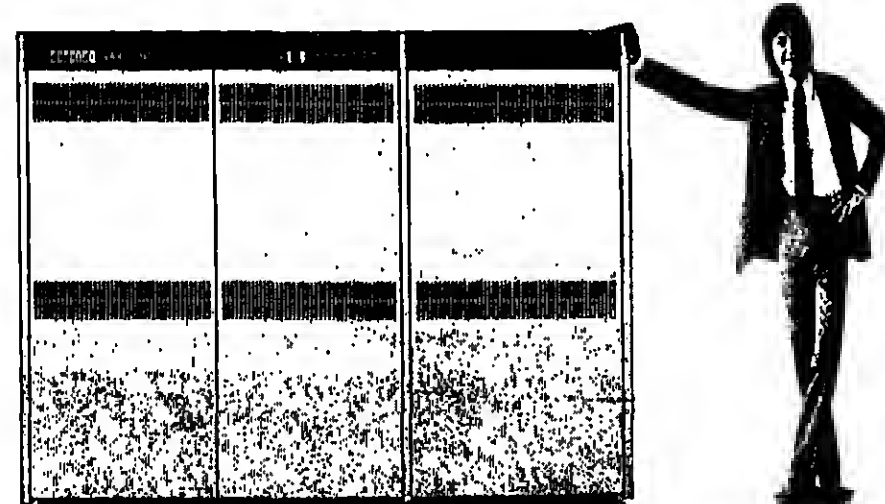
The company now sells colour units of three different sizes and resolutions for personal computers, terminals and space invader machines.

Recently it launched its first subsidiary, Micrographics, to make and market a new high resolution graphics colour display unit.

Martinez says the award money will go towards establishing a common ownership scheme for staff. Earlier this year Microvitec won £25,000 for coming fourth in a similar award scheme organised by the merchant bankers Hugh Samuel. Part of this money was spent on improving the staff canteen.

Martinez gives his staff credit for the success. "We have a very good product and an excellent team," he says.

The IAA is sponsored by BQ maker and Association of magazine.



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CW2/12

April 1983

Vax user gives Unix based package a good performance report

by George Black
ONE OF the first British commercial companies to use a Unix-based package on the Vax reports that "it has proved a tremendous help".

Research Services Ltd of London has installed Quantum, an ICP Million Dollar Award-winner, on its new DEC Vax 11/750.

RSL's Roger Calverley said: "There are still some deficiencies, but we are well on the way to a quicker and more flexible system."

The Quantum package, from Quantime, is used to edit data gathered by personal interviews and prepare tables based on calculations from that data. RSL previously used a bureau service which gave only a twice-daily turnaround on a batch basis. Now information can be handled interactively on the super-min.

RSL is considering building on the package to bring in Quantime, a telephone interviewing aid. Interviewers wear headphones while they talk and the program on the screen guides them through the questionnaire.

"It has the advantage that you don't have to send an interviewer into what could be a dangerous area to get facts or opinions. It's already very popular as an idea in the US for that reason and because

the Americans are far more phone-oriented," said Calverley. National Opinion Polls reports that Quantime is going very well for its phone interviewing, run on a Prime 850. NOP is the first UK market research agency to install Quantime for computer-assisted telephone interviewing, or CATI.

"It has been very successful and we're pleased with it," said NOP's Paul Harris, after the system had gone through its first month.

One problem is that only 75% to 80% of British homes have phones, so NOP has to be careful that bias does not creep into sampling. But as phone subscriptions rise to American levels, the chance of bias is decreasing.

Quantime was set up as a software house in 1978, but the Quantum program had been developed by director Ed Rosa before then. Thirty market-research companies around the world have run it on Prime machinery. When Quantime decided to rewrite it for the DEC equipment, it had to choose between Unix and VMS operating systems. Tens of thousands of lines of code were involved.

"It took three months to rewrite the whole package for Unix," said John Sanglier. "If we hadn't used Unix, I believe we would still have been doing it now."

Kason quits as president of UCC

by George Black
THE man Profiled in Computer Weekly last week, John Kason, president and chairman of UCC, has resigned for personal reasons.

The board of the American software house has elected J. Allen Huff as president and chief operating officer of the company following Kason's resignation.

Huff has been employed by Wyly, the parent corporation, since 1968, most recently as senior vice-president and general manager of UCC's software group.

Kason, 60, rose to the top of the \$66 million revenue software house in 1979. He had become director of the British subsidiary in 1968.

When interviewed by Computer Weekly he said: "I have been



KASON... Taking routine of an "indefinite" retirement. However, with one home in Hampshire and another in Dallas even the finest of men - which Kason gave every indication of being - could not keep up their routine of a 12-hour day.

digital

CTL to sign five systems houses

by Ron Coates

COMPUTER TECHNOLOGY (CTL) is to pull in five systems houses by the end of the year to help sell its systems.

And the first to be signed up on CTL's new Marketline scheme, Sunbury-based Systemsolve, is on the acquisition trail. The systems house has already taken a £250,000 order from air freight carrier Trans Global Air.

Ken Ramsey, CTL UK systems manager, said: "Marketline is not an OEM agreement but a trading agreement for areas of mutual interest. We will be offering introductory terms which will give an aggressive discount for the first six months and give the systems houses experience with CTL."

After that time Marketline systems houses will get a performance based discount of 25 to 35%. And CTL managing director Bob Finch said he would have another four systems houses signed up for

the agreement by the end of the year.

John Stanley, Systemsolve managing director, said: "CTL is the first manufacturer that has got it right from day one. They are very good to deal with."

And he said there would be no conflict with Systemsolve's other OEM partners. The company was the first to sign with ICL's Traderpoint scheme.

He said: "We are in the business of offering solutions. We will offer the best system that we can and I don't see a conflict."

"For high volume real time transactions that need instant backup, CTL's Momentum system would be indicated and for others ICL kit."

He added that Systemsolve, which is backed by the Hunting Gibson shipping group, was in the market for acquisitions.

Stanley said: "We are not looking for total acquisitions, but a

minority investment - possibly in an OEM as part of a diversification." Systemsolve now handles kit from makers CTL, ICL, Hewlett-Packard, Sperry Univac and Data General.

CTL and Systemsolve claim other joint orders in the pipeline worth £500,000 to Systemsolve. Stanley sets Systemsolve's turnover this year at £3 million for "professional services", excluding hardware.

The computer manufacturer has set up a special department to run its Marketline scheme which will handle training, support and joint marketing to avoid the conflicts of interest between sales forces which are a major drawback of many OEM agreements.

Ramsey said: "When a systems house is introduced to prospective business it can be sure that the lead is exclusive. Our sales force knows exactly who is experienced in which market sectors."



STANLEY... "CTL has got it right from day one".

EEC offers grants for electronic publishing

by Donald Kennett

THE EEC Commission is offering to back experimental electronic publishing services and is asking companies and consortia to put forward proposals by January 21.

Grants towards the cost of software development, installing user terminals, setting up data capture and other aspects of the services will be made from a fund of one million units of account (currently about £500,000) set aside out of the 15 million unit three-year budget for the scientific information and documentation action plan. They would be expected to cover about 25% of the costs, although this could be higher or lower depending on the number of acceptable proposals and how useful they are thought to be.

Would-be service providers should write to Carlo Verulm at the Commission for the European Communities, Directorate General XIII-B, Room B4-021, Jean Monnet Building, L-2719 Luxembourg.

SOFTWARE FILE

IBM picks Microsoft again for PC

THE electronic worksheet Multiplan is the twelfth Microsoft product to be offered by IBM for its Personal Computer. It will have the full capability of the planning and modelling tool and has been customised to take advantage of the full IBM keyboard. Users can input blocks or windows of information from a 16-colour pallet.

More than 25 companies have now given support to the software system, which handles resource planning, economic forecasts, sales projections and financial analysis. Microsoft also markets Multiplan for the Apple II and machines under the CP/M-80 operating system.

Accounting

AN accounting package for the IBM System 34 has been created by RTZ Computer Services. Package 34, written in the popular RPG II language, is said to minimise file storage space. Users can record financial data, currency or insurance values of an asset independently, specify any depreciation method, include inflation accounting standards and keep an asset history through an audit trail.

Prime DBMS

PRIME Information, a database management system previously available only in the US and Australia, is to be introduced in the UK. Since March 1979 Information has sold 650 copies abroad, according to Prime's UK marketing manager George Kendall. Based on the Pick operating system, the database system developed by Devcom is claimed to have outstanding networking ability.

Perq Unix launch

AN implementation of Unix for the Perq called PNX and developed by ICL and the Science and Engineering Research Council is in North American launch at the Las Vegas Computer Exhibition this week. ICL and Three Rivers Corp, which have agreed to work together to promote the Perq, will be putting on a joint stand at the show. Responsibility for developing the Perq has been taken over by ICL's Dalkeith, Scotland, centre.

Expert systems

THE subject of expert systems is to get an airing again, this time at the Polytechnic of North London, whose department of mathematics, statistics and computing is running its 1982 Expert Systems Tutorial on December 20. The course will review expert systems in action, and is open to computer users, programming staff, software managers and educators for a fee of £40. More information is available from Richard Forsyth at the PNL, telephone 01-607 2789, ext 2316 or 7309.

Bulletin for 2900

ICL's private viewdata system, Bulletin, is to be made available to users of large 2900 systems under the VME operating system next March. Bulletin is currently only supplied in the old 1900 format for running on the MB29 range.

Easier maths

MATHS and statistics problems will mean less sweat for DEC Vax programmers with the use of two new packages from IMSL of Houston, Texas. The Math/Protran and Stat/Protran programs are compatible with the Vax Fortran compiler and VMS operating system. IMSL has also released its library of Fortran subroutines for the HP 1000.

BA takes off

BRITISH Airways' passenger revenue accounting system Sopas has taken off - and BA will work with Computer Automation, whose Syra system is incorporated in Sopas, to promote sales of the package.

Tesco armchair service extended

by John Kavanagh

A COMPUTER based grocery shopping system which began as a social service for housebound people is set for extension into a commercial service. Tesco Stores, which set up the system with Gateshead Metropolitan Borough Council, has given a £26,500 grant to Newcastle University to look at the potential for an armchair shopping service.

The system is said to be unique because it involves very fast delivery of several low-cost grocery items rather than high-value orders for single consumer goods, which other home shopping services handle.

"We will be looking at the opportunities and problems of using cable television and viewdata for home shopping," said the researcher, Dr Rosa Davies, of Newcastle's geography department.

"Even so, the technology is already pretty well established; the main problems are those of the

logistics of getting a big range of items gathered, packed and delivered."

The original system, now run by Gateshead Council, is based on Commodore Pet microcomputers in two libraries and the social services office. Housebound people have a catalogue of Tesco products and can telephone the social services office with their shopping lists.

More mobile people can get to their local library to hand in their lists. A Prestel viewdata television set is available in both libraries with the Tesco catalogue and details of local services.

The shopping lists are entered to the Pets, which produce picking lists based on the layout of the Tesco Superstore on the edge of Gateshead. Periodically batches of shopping lists are transmitted to a printer in the store.

The items are gathered, packed and delivered the same day by three staff working full-time on the

armchair shopping project.

Tesco said around 180 people used the service every day. The average order was worth £8.

"We had to overcome the problems of people being intimidated by the computer but now everyone's over the moon about it," said a spokesman. "The service frees social services people from the mundane job of shopping so they can get on with helping people. And it makes housebound people more independent, giving them greater dignity and satisfaction."

The social services system is expected to be extended with the addition of a chemist's shop and a department store. It is backed by central government in the form of a grant from the Department of the Environment.

Davies said his grant to study the possibilities of a commercial service would last three years and could involve the setting up of a pilot system.



BELL... "Turning out to be a big advantage."

Irish firm sells on the spot in Silicon Valley

by George Black

IRISH software house boss Gordon Bell has gone to live in Silicon Valley, California, to promote his firm's products on the spot. Bell, managing director of the Belfast and Dublin firm Software Ireland, said: "We decided we ought to be there and there is no doubt that it is turning out to be a big advantage."

He is now living just south of San Francisco, only twenty minutes' drive from many of his clients. Meanwhile Frank Graham is holding the fort for him in Belfast.

The result has been two contracts for the Irish firm's Sibol package to run on the Codata and

Plexus 16-bit micros. And there are two more contracts in the pipeline.

Sibol recompiles programs written in Digital Equipment Corp's popular commercial language DIBOL, so that they can run under the Unix operating system. DEC's DIBOL is widely used on its PDP and Vax ranges.

The Sibol compiler enables DIBOL programs to be run under Unix version 7 and system 111 as well as some Unix lookalikes. Sibol is identical in syntax to DIBOL but source programs differ in their references to files.

The package includes a run-time interpreter, a symbolic debugger and a library of utility subroutines.

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CII-HB claims world lead in 5 1/4 in disc units

by Jack Gae

JACQUES STERN, chairman of CII-Honeywell Bull, said that the State-controlled French firm now led Europe in OEM peripherals when he presented its D520 5 1/4-inch compact disc unit, the world's first of this type, in Paris.

The unit incorporates one fixed 13 Mbyte disc and one removable cartridge of the same capacity. It will go on show at the Comdex exhibition of OEM products in Las Vegas this week.

The D520 has been designed and developed in France by CII-Honeywell Bull's subsidiary, Cynthia. It will be available in Britain and other markets from the middle of next year.

Cynthia's British sales are estimated at £2 million this year, double the 1981 figure. The firm's best customer in Britain is the Post

Office which takes almost half of the French firm's deliveries.

Presenting the D520, Stern said: "Our investment in magnetic disc research is justified by the rapid growth of the OEM market which is generating a bigger share of revenue, while that of CPUs is going down."

"No other European company can match us in OEM peripherals. The real competition is coming from the US and Japan."

CII-Honeywell Bull plans to capture about 15% of the world market for 5 1/4-inch discs by 1985 with sales of 50,000 D520 units annually.

The French firm claims that the D520's storage capacity of 26 Mbytes on two 13 Mbytes discs gives it the best size-capacity ratio available. In OEM quantities of 100 units it will be priced at about £1,000.



Wigan students get to know their new robot.

College buys a robot

by George Black

A £16,000 ROBOT bought by Wigan College of Technology forms the subject of a 15-week evening course for mechanical engineers.

"We're just getting to know it at the moment," said Wilf Lloyd, dean of the faculty of engineering and construction, "but we shall be developing it to its full capability."

One of the electrical engineering staff, Derek Green, is to do a two-year PhD course through Liverpool Polytechnic writing software for the robot. The supplier was Dainichi-Sykes Robotics of Pres-

ton, which is to arrange lectures by its automation experts for the students and put on visits to its factory.

The PT300V model was chosen by the college after discussions with Dainichi's technical director John Rose, former principal of Blackburn College of Technology. The industrial machine is described as versatile, and it operates in five axes of movement.

The college is to put on a one-year full-time course aimed at unemployed engineers and second-year students from industry starting next September.

Bulgaria buys British

THE Bulgarian government is installing a British software package in its manufacturing plants. A team of four Bulgarian programmers has been visiting Bristol to assist in the implementation of the financial and manufacturing routines in their factories.

The contract has been won by Zenith Manufacturing Systems, a joint enterprise of Zenith Information Systems of Bristol and the South Wales computer supplier Data Type.

"The Bulgarian deal has meant a bit of redefinition but it has all gone a lot smoother than we thought it would," said Mike Harris, sales manager for Zenith.

The package is written in RPL, a Risc-based Support Services language, and runs on the DEC PDP-11s. The Bulgarian government also has the rights to install the system throughout Eastern Europe. Implementation is being carried out on a modular basis and may take up to two years.

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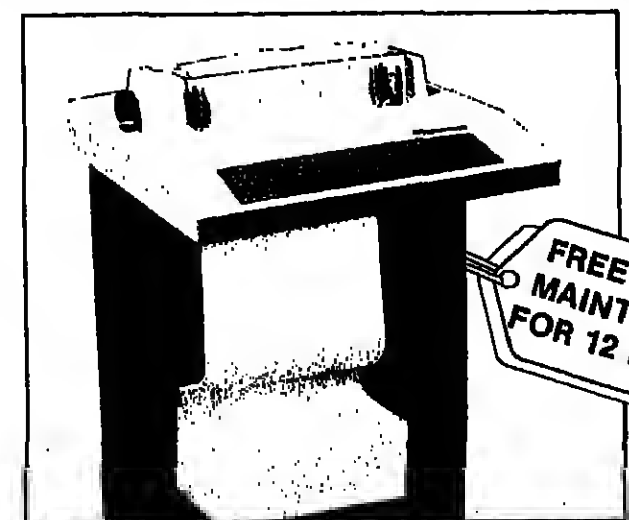
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COMPANY NEWS

MBS goes public on micro boom

THE boom in micros has persuaded Micro Business Systems of Broom, Berke to take the plunge and go public this week.

Based on a profit forecast of £750,000 pre-tax for the year ending December 31 1982, brokers Simon and Coates are offering the shares to the public at a placing price of 120p.

This puts a value on the five-year-old business of £8.1 million against a forecast turnover of £6.4 million for this year.

With sales of £455,000 at the end of 1979, the company has grown until in 1981 turnover reached £2.5 million; it was £2.6 million for the six months ended June 30, 1982.

According to joint managing director Mike Brooke, the main purpose of the flotation is to convert some of the company's indebtedness to directors and banks into equity (shares).

The placing prospectus, the do-

cument issued by the brokers when they float a company's shares, says that the growth of the MBS business to date has been financed by a combination of the major shareholders' funds, retained profits and third-party (bank) finance.

The total placing of 1.8 million shares is split between shares offered to raise money directly for MBS, and shares offered by the main shareholders.

MBS will receive £845,000 and the directors about £1.2 million before expenses and tax.

By the time the principal shareholders have settled the bank and other loans they used to set up MBS, no one is going to be a millionaire. And, at £115,000, the expenses of going on the Unlisted Securities Market for MBS have been a good deal higher than the £50,000 paid by NMW recently.

According to the directors, the money raised, and the fact that the

company has got its shares on the market, will enable MBS to continue its policy of expansion by acquisition.

Much of the speed with which the company achieved its turnover increase of better than 100% per annum over the past few years has been achieved by a process of merger and acquisition.

MBS includes the Altos distributor Microtex, which has so far purchased \$1.1 million of the \$3.1 million worth of 16-bit machines it needs to purchase from Altos by mid-1983 if it is to retain the distributorship.

Other companies in the group include MBS Terminals and MBS Engineering Services. The latter remains one of the main support and servicing organisations for the Jacquard minis and microprocessors, but is becoming increasingly involved in the maintenance of the Altos machines distributed by the parent marketing company.



BROOKE... Main purpose of the flotation is to convert debts to shares.

Picture is rosy at DPCE

AGGRESSIVE maintenance group DPCE, of Wokingham, has turned in some excellent results for 1981-82 and is making fast the kind of noises those about to go public make.

Harvey Tordoff, the group's finance director, said turnover at the company rose 44% during the fiscal year to reach £3.6 million a year end on June 30, 1982.

DPCE has made investments of over £500,000 in expanding its markets and increasing its customer service organisation. Tight cash management has added £50,000 to profit from over £500,000 cash held on deposit, according to Tordoff.

This kind of cash control is appreciated in the City and Tordoff's stop-press forecast of turnover a just under £5 million for the whole of 1982-83 will add to the likelihood of a market debut by the company.

During the year, DPCE picked up virtually all the maintenance work at the Post Office and Giro bank at Booter in Lancashire.

Cray profits suffer from licence delay

CRAY Research, the Minneapolis manufacturer of high-speed vector computers, will not achieve its fourth quarter targets as the result of a failure to deliver two computers to France.

According to John Carlson, the Cray director of public affairs, the company's profits for the year will only be 10% up, against the predicted 80% to 90%. The predictions mostly come from New York financial analysts, but are based on Cray's own estimates

of machines to be shipped. Cray's recent month figures showed profits of \$6.8 million against \$10.1 million for the same period of 1981.

The company is currently shipping Cray 1s at prices of between \$5 and \$11 million each, and the company had confidently predicted that it would ship 16 systems in 1982. The predictions were based in two firm orders from French government agencies made earlier this year, with a third to

follow. The French government already has one Cray 1 in use at its Atomic Energy research establishment, although there were reports of difficulties in operating the machine about a year ago.

To send the machines to France, Cray Research needed export licences from the US commerce department, and expressed confidence all year that these licences would be forthcoming. Carlson is now saying that he

does not feel Cray will get the licences. "It's getting too late in the year."

Carlson said the government bureaucracy is getting slower and Cray will now pursue its "alternative policy". This will involve converting one or more of the current lease sales to outright sales.

"This will not be as good, since we had shipped the machines, and our profit growth will only be about 10%", Carlson said.

UK peripherals imports are increasing

by John Aczel
BRITISH imports of computer peripheral equipment have remained at a high level with the trade deficit widening considerably in recent months.

Foreign deliveries are now taking an even larger share of the British market than before and are very competitively priced.

The growth in imports was predictable, especially as total demand in the British computer industry has been picking up recently. Activities in the computer sector have been quite buoyant, particularly for mini and micro equipment, and this has been reflected in increasing demand for all types of foreign products.

An additional factor has been the relatively high level of sterling against other foreign currencies, even though the pound has been declining in the last few months.

In many quarters, it is agreed that the pound is over-priced against other currencies, and this has meant that some importers have benefited in order to step up their sales to the British market.

The latest trade statistics refer to August, and, in that month, computer peripheral imports reached a record figure of £58 million. This

compared with £56.6 million in the previous month, while for the first eight months of the year, the cumulative figure has risen to over £440 million.

This increase in foreign deliveries has not been confined to value, but the volume of peripheral units has also gone up appreciably. In August, the number of peripheral units amounted to over 86,000, while, for the January to August period, the overall total has reached a peak of 654,000 units.

Most of these imports have been reasonably priced, with the cost of a unit averaging £670 at port of entry. If wholesale and retail margins are added on, the ultimate price would be much higher, but the overall price structure for imports has been very competitive, and, for some products, has been falling rapidly in recent months.

The United States has continued to dominate the market, and its imports rose by 7% in August to reach £33 million; this represented over 55% of total British imports.

Japanese products have increased their penetration of the British market and accounted for 6% of overall foreign deliveries. In terms of product groups, sig-

nificant increases in deliveries have been seen for visual display units, and their value jumped by 30% to £8.6 million. Imports of storage units have increased, particularly disc equipment, and printers have also remained at a high level.

Exports have been erratic and have not performed as well as expected. In August they amounted to £31.4 million, which represented a drop of 16% compared to the previous month. For the first eight months of the year, British sales abroad amounted to about £270 million.

In some markets, British exporters had difficulty in maintaining their sales, and this was particularly the case in Western Europe. Exports to West Germany fell sharply and amounted to only £6.3 million in August. In addition, sales to Italy were considerably lower and fell below £3 million.

Sales to France continued to

forge ahead and rose by 13% to £5 million, while those to the Netherlands were level-pegging at around £1 million.

In other parts of the world, British exports have been showing a mixed trend, but they have made some headway in the Middle East. Saudi Arabia is now proving to be an important market, and sales to that country rose by about 15% to £2.2 million.

This market is growing quite rapidly and now represents an important outlet for British exports, accounting for about 5% of total sales abroad.

In terms of product groups, a good performance was recorded for VDUs as well as for printers, but there was a sharp downturn in exports of storage units. For this sector, sales abroad amounted to £4.1 million in August, as against £5.8 million in July, though this fall may be only a temporary, nature.

	August 1982	July 1982	January-August 1982
	£000	£000	£000
Belgium-Luxembourg	911	797	8,558
France	6,057	5,272	51,093
Germany (West)	6,330	10,275	56,697
Italy	2,855	4,184	28,502
Netherlands	1,044	1,093	10,363
Norway	662	443	4,516
Saudi Arabia	2,193	1,952	10,851
South Africa	1,147	1,987	12,142
Spain	1,471	1,447	11,709
Switzerland	1,204	1,769	11,228
Sweden	1,128	1,138	9,884
US	633	576	7,233

Table 1: British exports of peripheral equipment (by main markets)

	August 1982	July 1982	January-August 1982
	£000	£000	£000
Peripheral units			
Disc storage units	3,669	4,790	32,968
Magnetic tape storage units	282	840	3,076
Other storage units	132	172	1,549
Printers	2,572	2,577	20,996
Readers and punches	256	415	5,872
Visual display units	13,401	13,497	108,196
Other terminals and consoles	623	871	6,680
Other peripheral units	10,469	14,237	91,869
Offline data processing			
Punches, verifiers and calculators	47	21	221
Other equipment	817	915	5,426

Table 2: British exports of computer equipment (by product group) (by value)

Textile design venture

by George Black

TWO university men have gone into business as computer experts in the textile trade, aided by the British Textile Group. They are John Carroll and Peter Grigg of Manchester University Institute of Science and Technology, UMIST, who have set up Textile Computer Systems with the aid of a £60,000 investment provided by BTG.

Colour designs used to be made by hand on graph paper and laboriously converted to cards or

tape. Now microprocessors allow patterns to be built up and rapidly adjusted on colour monitors using a digitised table. The patterns are then converted automatically to control cards or tapes.

Using microprocessor TGS aims to cut design times for unit patterns from between ten and 30 hours to about an hour or more.

TGS foresees a big market in the US and in Europe, and a million-pound turnover is aimed at in 1985.

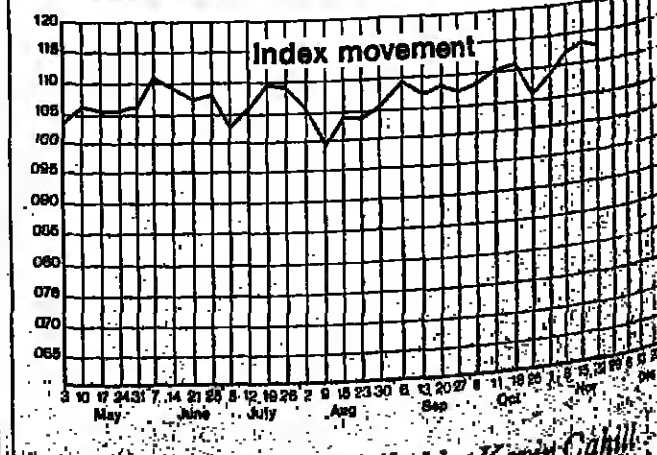
SHARES TABLE

The shares table, which is specially compiled for Computer Weekly, lists selected computer companies that reflect the state of the computer industry.

Date 20/11/82		Index 121.04		Date 20/11/82		Index 121.04	
1982	1981	1982	1981	1982	1981	1982	1981
High	Low	High	Low	High	Low	High	Low
180	180	180	180	180	180	180	180
181	181	181	181	181	181	181	181
182	182	182	182	182	182	182	182
183	183	183	183	183	183	183	183
184	184	184	184	184	184	184	184
185	185	185	185	185	185	185	185
186	186	186	186	186	186	186	186
187	187	187	187	187	187	187	187
188	188	188	188	188	188	188	188
189	189	189	189	189	189	189	189
190	190	190	190	190	190	190	190
191	191	191	191	191	191	191	191
192	192	192	192	192	192	192	192
193	193	193	193	193	193	193	193
194	194	194	194	194	194	194	194
195	195	195	195	195	195	195	195
196	196	196	196	196	196	196	196
197	197	197	197	197	197	197	197
198	198	198	198	198	198	198	198
199	199	199	199	199	199	199	199
200	200	200	200	200	200	200	200

The table shows the closing prices in London on Friday and in America on Wednesday. The index is based on the prices of the UK companies in the table. Highs and Lows have been taken from the table.

*Shares traded on the Unlisted Securities Market or under Rule 143(2)(a).



Company News is compiled by Kevin Cahill

MICRO NEWS



MARSH... "Dramatically better performance"

Unix specialist joins the Motorola 68000 bandwagon

THE Motorola 68000 handwagon for high performance business microcomputers picked up another rider this week. California-based Unix specialist Plexus has come out with 68000 versions of its multi-user machines, and expects them to displace its present Zilog Z8000 micro over the next two years.

At the same time as launching the Motorola machines — the P/35 supporting 16 users and the P/60 for up to 40 users — Plexus has dropped the price of the Z8000 equivalent, the P/25 and P/40. The P/25 desk-top machine has been cut by a quarter, giving a European price equivalent to \$19,500, while the larger P/40 has been cut by 3%. The P/35 starts at \$10,543.

"We have made the Z8000 products extremely price competitive, and given ourselves room to introduce the 68000 products," says Plexus European marketing manager Tony Lazzarini, ex-Plexus specialist at the company's largest UK dealer, Keen Computers.

"Over the next 12 to 18 months the Motorola machines will approach 90% of our sales," Lazzarini adds. "In two years' time 32-bit will be what everybody is selling, and we'll all be sitting around wondering what's going to replace the 68000." (The 68000, though externally, a 16-bit chip,

has various 32-bit internal features.)

The new machines use the same basic frame as the earlier products, as well as sharing the Multibus architecture and intelligent peripheral and I/O controller boards. The difference comes with the main CPU board. As well as the 68000 processor instead of the Z8000, the board carries 4K of cache memory and 12K of fast static RAM. These allow the 68000 to run at 12.5 MHz with minimal wait states.

"With Unix, users are no longer restricted to one hardware supplier," says Bob Marsh, chairman of Plexus Computers. "It gives them a dimension of flexibility they never had before."

The effect of the super-fast hardware tailored to the Unix System III is to give performance comparable to a Vax-11/780 according to Plexus. "We see the P/35 and P/60 as second generation 68000 systems, offering dramatically better performance than any single processor design," says Marsh.

Part of this speed comes from off-loading the main CPU of tasks such as disc control and I/O handling.

These are looked after by controllers built around Z8000 16-bit processors developed for the earlier machines.

ICL Perqs up its workstation

A PUSH is on to strengthen the ICL/Three Rivers Perq graphics workstation. ICL is to play a bigger part in both hardware and software development, spending more on managing all development work, including that done by Three Rivers in the US.

It will be stepping up its marketing activities, too, and has formed joint marketing teams with Three Rivers to present a more united front to the world.

But the strong challenge that will come from the Hewlett-Packard offering in this market — the HP9000, launched last week — will have little effect on the way ICL markets the machine.

"We obviously expect this class of competition, and more and more of it," says ICL's Perq marketing manager Reg Chamberlain. "There will be no real change in our marketing approach."

ICL's view is that the entry of further machines to the graphics

workstation market will be good generally, and that the market is still young and ripe for expansion.

However, Hewlett-Packard is already so well established in the scientific and technical market, with machines of one kind or another in nearly every scientific establishment, that ICL must find it tough going to compete with the household name for laboratory desk-top computers.

Chamberlain feels Perq compares favourably on price with the HP 9000. A one-Mbyte black and white unit with integral hard storage will set back a Perq buyer about £27,000 with Unix and a couple of languages. The HP buyer will spend £35,000 for a similar configuration, with a printer thrown in but with less mass storage.

"I would have expected this Hewlett-Packard offering to undercut Perq," he says. "We have to be grateful it doesn't, I suppose."

Missing word for the Visi range

PERSONAL computer software house VisiCorp — which as Personal Software established a winning combination with its product VisiCalc and the Apple II microcomputer — has added the missing word processing package to its family of Visi products.

The new offering, called VisiWord predictably enough, joins the original VisiCalc spreadsheet program and its file management, graphics and other offerings in the family of what VisiCorp calls generic software — a level between operating system and application software. As well as giving the usual word processing functions, VisiWord allows screens from VisiCalc, data files from VisiFile and graphic displays from VisiTrend/Plot to be integrated easily into documents, with no need to move out of VisiWord into other programs.

It is menu-driven and has a help screen if things get too much for

the user. This is all part of what VisiCorp styles its BLU concept — Easy to Learn and Use.

"Every time we have a choice between putting more features in a program and making it easier to use, we go for the ease of use," says Jean-Claude Caraes, VisiCorp's European marketing manager. "Things must be understood by the user if they are to be successful."

And success is one thing that has not slipped by VisiCorp. Last year it multiplied 1980's \$1 million turnover to \$19 million, and Caraes expects this to be boosted to over \$40 million for 1982.

VisiWord will first be offered on the IBM Personal Computer — rapidly moving into the role of archetypal micro that Apple held in the eight-bit days — and will be shipped worldwide from the third week of December.

In the UK VisiCorp products are distributed by Rapid Termi-

nals, a division of Rapid Recall, to well over 500 dealers.

After the IBM Personal Computer, Caraes expects the DEC Professional to be the next machine the company will implement VisiWord on, perhaps then followed by Apples.

As with the rest of the Visi family, CP/M in its various guises is avoided.

But when CP/M is moved on to silicon — as semiconductor manufacturer Intel is already doing — this may well change, says Caraes. If this does happen it should reduce the scope for look-alike products — VisiClones — particularly of VisiCalc that have emerged since its original success.

"We will always have competition," says Caraes. "We just have to capitalise on being first."

And being first has put VisiCorp on a quarter of the world's Apples.

Micro News is compiled by Robert Parry

E-beam systems in use at IBM plants

TWO IBM manufacturing plants — East Fishkill in New York State and Besencon, France — are using direct write electron beam equipment in the large scale production of ROMs. This is thought to be the first application of e-beam technology in volume production.

Five e-beam systems are in use, all developed by IBM itself, to write the patterns in layers on gate arrays incorporated into the memory chips. Bit patterns are designed at IBM in Poughkeepsie and the data transmitted to the plants where the chips are manufactured under computer control.

The e-beam processed memories are used in IBM's most powerful processors, the 3081, 3083, and 3084. Previously projection aligners, which need masks and chemicals to etch the bit patterns, were used.

The problem which faces every systems designer is finding hardware powerful enough to meet his needs while keeping within his budget. But now there's a system available which satisfies both requirements.

A real-time, multi-user, multi-tasking system, the WICAT 150 offers more performance per £1000 than any other system on the market.

Based on the Motorola 68000 16-bit processor, the WICAT 150 has an unusually wide range of hardware, software and applications software options, and can support virtually any language. Systems start from £4995.

LOCAL SUPPORT

The system has another major advantage, too. It's supplied in the UK by Software Sciences Distribution — which means you get the best technical support and maintenance service in the country.

With Support Centres throughout the UK, and backed by a major British electronics group, Software Sciences give you the kind of support only a major distributor can provide — including the facility to have an engineer on site within four hours of call.

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LIST OF OPTIONS

OPERATING SYSTEMS

UNIX, MCS, CP/M emulator, COS/68000.

COMMUNICATIONS

Local networking, Synchronous

including IBM 2780, 3270 and 3780 protocols.

LANGUAGES

FORTRAN 77, APL, CISC-COBOL, RM COBOL,

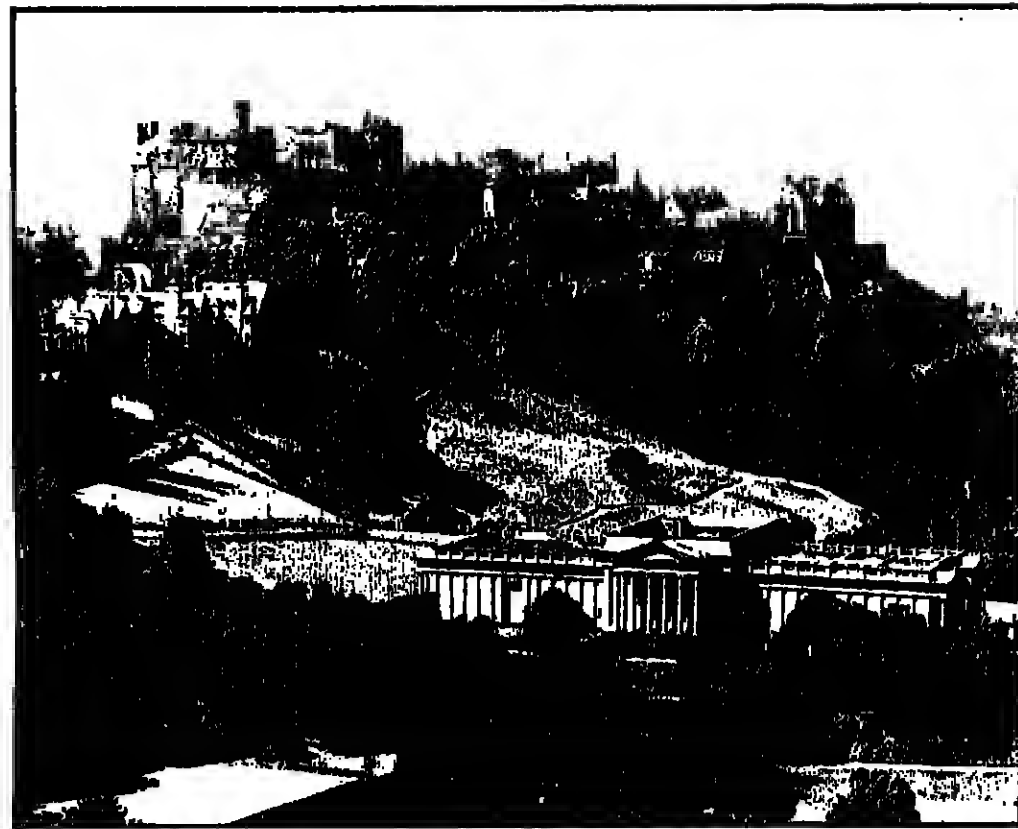
C/PASCAL, ASSEMBLER, SMC BASIC

HARDWARE OPTIONS

Expandable to 1.5 MByte RAM, graphics CRT,

video disk interface, optional RS-232C interfaces,

NEWS ANALYSIS



Edinburgh University will be short of staff in the future, but Systems Designers is funding some research.



"The biggest task is to learn how to give things up," says a Cambridge man.

THE CUTBACKS being implemented throughout the university system are causing increasing problems for computer departments and hindering long-term research projects.

A brave face is being put over the underlying mood of pessimism, and the degree to which universities have been affected varies considerably. However, there are signs that at least some university computer departments are looking beyond their traditional sources of funding towards industry.

In these cases the cutbacks seem to be acting as a catalyst to make departments more willing to seek out collaborative projects with computer companies.

There have also been more links with universities initiated by the computer industry. An important reason for initiating or transferring research and development projects to universities and polytechnics, apart from reducing costs, is to take advantage of the accumulated expertise and research within them.

But these academic geese, which are still producing their golden eggs, are ailing. There is a feeling that industry backed by government must put a lot more in, with full consideration of the long term as well as shorter term applied projects. Sidney Michaelson, professor of computer science at Edinburgh University, sums up the situation from a university point of view: "We are using up seed corn without replacing it. We're going to be very short of people in the future. We are doing the best we can, but the government doesn't really support us as much as its fine words suggest it would be."

And this lack of support means that morale in the universities is declining, uncertain funding is hindering planning and long term research, the teaching and administrative burden is heavy, the number of computer users is increasing and university computer services are overloaded.

"The universities have tried to protect their academic computer departments," explains Michaelson, "but there is a shortage of cash, and an increase in users, and most computer departments have a high student/staff ratio. Some departments can't afford to pay the maintenance for weekend running of major machines."

The university computing services, which are closely related to the academic departments, are strained with staff freezes, and cutbacks in advisory services and other facilities.

One of the worst hit is Salford. Dr John Slacer, director of Salford University Computing Services, says: "We have lost about seven operating staff, and there are six programming posts vacant now. We have no data preparation or reception staff. However, we are

Cuts force universities to link up with industry

As the financial squeeze hits higher education, academics are seeking new sources of finance in order to maintain standards, says John Riley

attempting to meet the demand in a more streamlined fashion."

Both Oxford and Cambridge University Computing Services are beginning to feel the pinch. Staffing is now frozen at Oxford, where the biggest effect of the cuts is to limit the amount of advice available in the face of increasing numbers of users.

Cambridge is experiencing no cutbacks in service at present, but demand is expected to rise, and attention is being paid to the longer term problem of how best to change priorities with the changing technology. "The biggest task is to learn how to give up things and to find ways of re-using the effort," says a spokesman.

The main cause of the cutbacks in the universities has been a decrease in support for staffing, which is funded through the University Grants Committee (UGC). Three university computer centres, Manchester, London and the South West Universities Regional Computer Centre at Bath, have their staff funded through the Computer Board of the Department of Education and Science.

These are protected from the major cuts applying elsewhere, but no fat is allowed to accumulate. The Computer Board provides the funds for capital installation of new equipment for university departments (the 1982-3 budget for this is £12.3 million), and also supplies central support services for maintenance, and a limited number of special projects, usually involving funding a few staff at various institutions and mainly for networking support (the 1982-3 budget is £17.1 million).

There is a feeling in some universities that companies should be investing more in them, while there is a view from industry that universities should be working harder to interest commercial organisations in collaborative ventures.

The university view is expressed by Michaelson: "Several firms are becoming more forthcoming in terms of helping academics with grants, and there has been a change of attitude by companies. Companies are at last realising that they have to take advantage of universities if they are going to compete. Only in the last year are they

welcoming suggestions from universities that collaboration is beneficial."

An example of this is the recent funding by Systems Designers of a lectureship in artificial intelligence at Edinburgh which arose from the university's interest in knowledge-based systems.

Another perspective is provided by Digital Equipment, which has consistently backed research projects, particularly in the US.

David Skyrme, until recently DEC's head of European education marketing, comments: "Two or three years ago, 95% of our research was conducted in the US. However, we are now adapting our products more to local environments and have been looking more to supporting European-based research projects."

"We have found that European universities have come to us with well thought out and attractive proposals, while we have had to approach British universities. Britain has been slower to pick up overtures than Europe - perhaps British professors felt that they

would be more obligated than they need be. However, this situation is changing, and we find that one result of the cuts in the universities is that they are now more receptive to collaboration."

DEC has four major projects in hand which will be published more fully in due course. DEC's budget for university collaboration is "from 1% to 5% of our R & D budget, which is 10% of the corporation's earnings," said Skyrme.

Smaller projects include involvement in micro development systems, with, for example, a project involving microprocessor design at Oxford University Computer Teaching Laboratories; another project involves computer-based training in accountancy at the University of East Anglia.

Turning to other manufacturers, ICL this year formalised its funding of university research by setting up a University Research Council and is contributing a small amount - 1/4% - of its annual R & D budget. ICL is not releasing details of the locations, sums involved or nature of research, but

there are already 10 significant collaborative ventures, of which seven or eight are in computing departments.

IBM is funding various projects at Oxford, Cambridge, Southampton and East Anglia, and has joint research programmes at Sheffield and Brompton Hospital. Without wishing to imply that the cuts in the universities have led to a change in IBM's attitude, a spokesman says that IBM is now taking a more positive view to providing money for specific projects rather than general funds.

Computer Analysts and Programmers, the software house, has a unique way of forming a bridge between its own and university/polytechnic research through its MARI organisation.

This is the Microelectronic Applications Research Institute in Newcastle, which was set up jointly about three years ago by CAP, Newcastle University and Newcastle Polytechnic. Much of the institute's research is on Unix connection and fault tolerant software.

Alan Benjamin, CAP's director of communications, outlines the reasons for establishing the institute: "Partnerships between companies and universities have difficulties, and we considered that by making it formal, procedural wrangling would be avoided. Therefore we set up a formal institute to form an effective bridge between research at the Newcastle and CAP."

"The institute, which is non-profit making in that profits are to be ploughed back into the institute, is now self-supporting, employing about 30 people with a turnover in the region of £380,000."

CAP's input now is mainly in staff, with several of MARI's staff on secondment from CAP.

Benjamin is concerned about the problems of the universities of higher education and says: "Industry just has to respond to this situation and we are studying how we might help. I can say that we are looking into the possibility of setting up another MARI-type organisation."

Benjamin has found that polytechnics are "more alive" in making contact with CAP than the universities. CAP is also involved with supporting two projects at Reading University. Some "tens of thousands of pounds" went, according to Arthur Trice, director of CAP Reading, into the Faculty of Agriculture there for research on a micro-based data system called "Daisy" which monitors feeds given to cows.

Another collaborative project is being conducted in the Department of Construction. CAP has possible commercial application but not requests for collaboration and pure research," says Trice.

In addition to these initiatives from industry, some universities are very active in creating their own initiatives, particularly those universities hardest hit by the cuts. Examples are Salford University Computing Laboratory, which in June launched a campaign to market software and consultancy services in the UK and the US, and Bradford University which in 1981 followed up the success of its independent Software Services department by launching Technology Transfer Services to market programs developed by the Postgraduate School of Studies in Industrial Technology.

These examples of collaboration between academic and commercial organisations point to the accelerating trend towards such collaboration. Benjamin is looking to the future and comments: "If the future recommendations are adopted, there will be a call for qualified people to handle the programme. It can't be achieved without people. It seems to have been quite towards this, and I should expect that there will be more responses."

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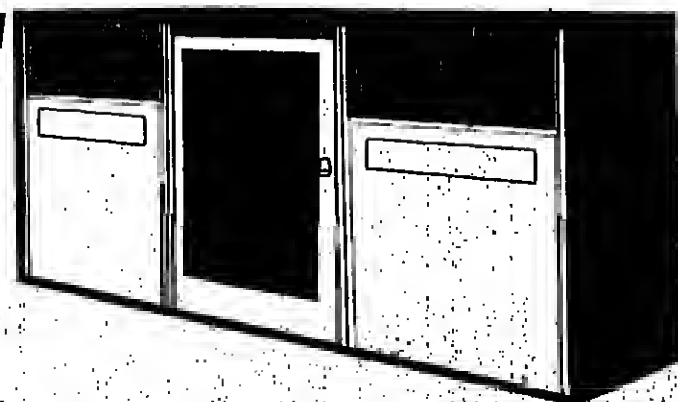
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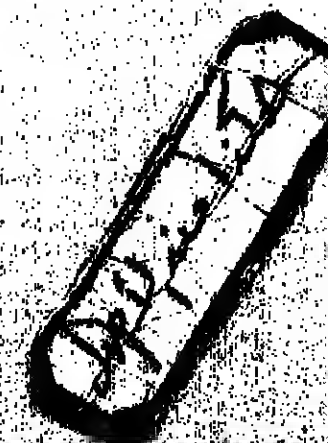
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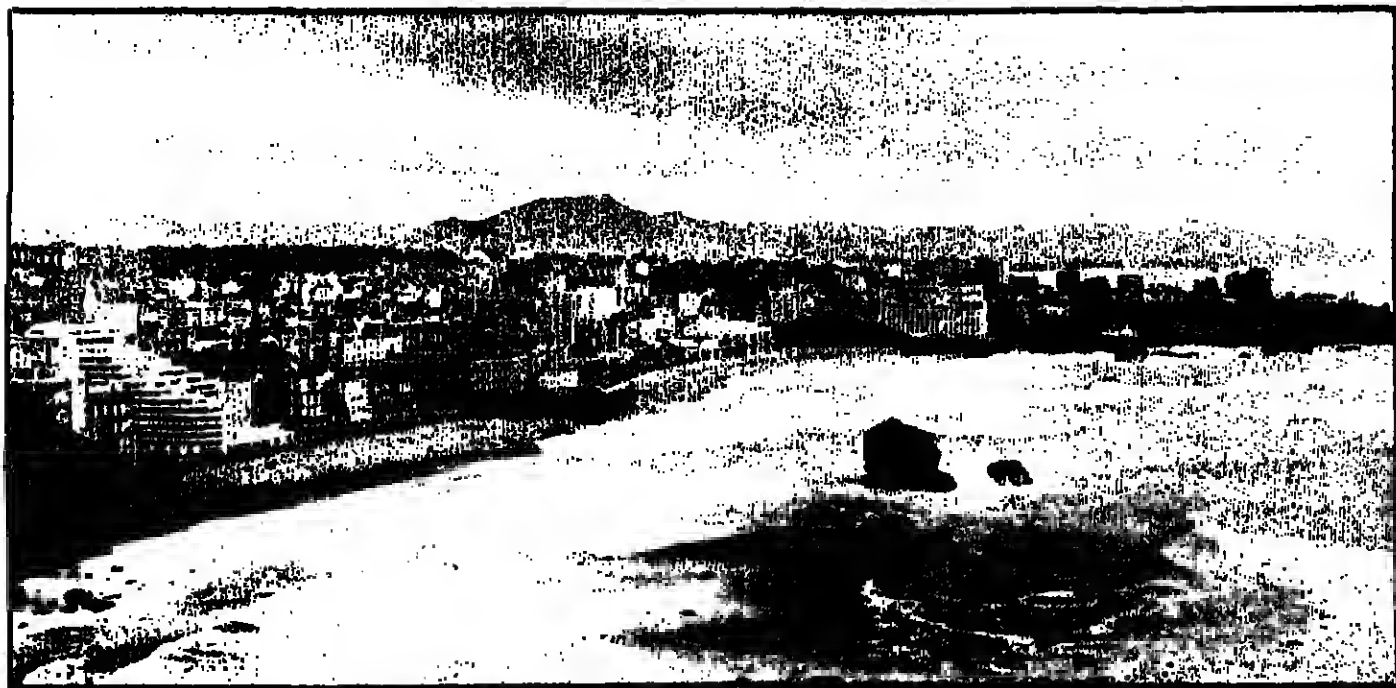


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TELEMATICS TRIAL



Biarritz was chosen because of its poor television reception.

France leads with first urban optical fibre net

BIARRITZ, the French holiday resort and favourite haunt of European royalty and the pre-World War Two jet set, will soon have a new claim to fame. Within a few months it will be the scene of the world's first trial of an optical fibre telecommunications network embracing an entire township.

Construction of the main switching centre for the project was recently completed on the site of Biarritz's Victorian railway station.

It was here, just over a century ago, that Emperor Napoleon III and his wife Empress Eugénie used to disembark from the imperial train which brought them from Paris, setting a fashion which turned a storm-swept Atlantic fishing village into an international centre of leisure.

But soon Biarritz will be attracting more purposeful visitors. Engineers and telecom officials from all over the world will be flocking

there to study at first hand the performance of a new French venture into high technology.

Next summer, 1,500 homes will be wired with optical fibre cable, giving telephone subscribers access to a wide range of new services including videophone, cable television, high fidelity stereo and videotex. By 1985 over 5,000 Biarritz, as Biarritz's citizens are called, will be connected to this versatile new network.

The Biarritz venture is a milestone in the progress of optical fibre as a substitute for copper wire in telecommunications. Copper is costly. It is mined in countries which might be tempted to follow the example of the oil producers and blacken customers with the threat of economic disaster into paying ever-increasing prices. In contrast, glass fibre is made of one of the commonest and cheapest ingredients - sand.

Glass's potential for transmission has long been known to scientists. The principle was applied in the 18th century in the optical telegraph. Our ancestors were well aware of the role of light in sending information, using sun, fire and smoke signals to transmit messages.

But optical transmission was unreliable. It was beset by the problem of directing and stabilising light beams. This hurdle was vaulted with the invention in 1960 of the laser (light amplification by stimulated emission of radiation) which at last brought them under control.

Over the past two decades scientists, after taming those erratic beams of light, have been able to turn sound waves and images into light impulses, transmit them over slim slices of silica to their destination and there convert them back to their original form with minimal if any loss of quality.

Optical fibres today can provide transmission of vastly superior quality to that of conventional cable. A sheath of fibre can carry 200 times as much traffic as copper wire of the same thickness.

This year France's Ministry of Posts, Telecommunications and Telediffusion (PTT) is placing orders for 3,000 miles of fibre - five times as much as in 1981.

Jacques Dondoux, France's director-general of Telecommunications, told the European Conference on Optical Communications at Cannes in September: "We plan to connect 1,500,000 French homes to our telecom network with optical cable over the next three years."

Switching into a Churchillian idiom, he added: "But production on an industrial scale is going to mean a lot of blood and tears. I'm speaking technically, of course."

Dondoux predicted that the de-

Engineers will flock to Biarritz to study France's latest high tech venture... Jack Gee reports

velopment of France's telecom system would offer a broad gamut of opportunities for optical fibre. One example which he gave in the advent of television satellites providing direct broadcasts. Individual antennae will be costly for households. Optical fibre links, which will hasten the development of local cable TV, are the obvious answer.

The fast growth of demand for videotex and other telematics services will encourage subscribers to ask for a second domestic telephone line, according to the French PTT. Here again, optical fibre will provide the solution.

French Telecom has already confirmed the performance of the first optical fibre link between two Paris telephone exchanges four and a half miles apart, which was cut over in 1980. The cable, which has an outer diameter of 21 millimetres, can carry more than 30,000 telephone lines on a laser-light medium.

The fibres were manufactured by Lignes Télégraphiques et Téléphoniques (LTT), a member of France's Thomson-CSF group. LTT is now supplying cable for the Biarritz network.

To meet the expansion of demand on both the home and export markets, Thomson has joined forces with Saint Gobain, the French glass conglomerate, and Corning Glass in the US. Together they have created a new firm, Fibres Optiques Industrielles which has gone into production with an initial capacity of 20,000 miles of optical waveguide. Besides ac-

The broadcast services allow a choice of one or two television channels out of 15 (including Spanish TV) which can be extended to 30 and one stereophonic channel out of 12. The videophone terminal can also be used to access Teletel, France's interactive videotex system.

Teletel already offers a broad choice of services to 2,500 homes in another French Telecom community experiment which has been conducted for the past 15 months at Velizy, a Paris suburb. All these services will be available in Biarritz.

Gerard Leotiez, the project manager, says: "At a later stage our subscribers will be able to use smart cards with microprocessor memories for electronic funds transfer right in their own sitting rooms."

All the fibres used in Biarritz are graded index MCDV (Classe Vapour Deposition) with a bandwidth greater than 300 MHz. lometre and an attenuation of less than four decibels per kilometre (6.4 decibels per mile). About 7,500 miles of fibre are being ordered from Fibres Optiques Industrielles.

Each cable element, about four millimetres in diameter, has 10 helical grooves in which the fibres are placed. The cables consist of either 10 or 70 fibres and are protected by a sheath of welded aluminium or steel. The sheath's diameter for 70 fibre cables is about 20 mm. This allows them to be drawn through conduits with a diameter of 45 mm.

At a later stage, subscribers will be able to use smart cards with microprocessor memories for electronic funds transfer, right in their own sitting rooms

quiring expertise in producing and applying optical fibre technology, the project is enabling French Telecom and the manufacturers to test terminal components and connectors on an industrial scale.

Biarritz was chosen for the test in competition with several other cities. Critics of the last government, which took the decision in 1977, claim that the Basque country resort was selected because its mayor and senator were political supporters of President Giscard d'Estaing.

But the French PTT says the main criterion was the town's proximity to the Pyrenees Mountains, which makes for poor television reception. This made it an ideal site for testing cable TV over optical fibre.

The operation spans the centre of the city and two residential districts. Users will access a switched service for dial-up establishment of point-to-point links between two subscribers. Each link comprises a picture channel of Conflans-Saint Honorine and Pléthiviers.

Société Anonyme de Télécommunications (SAT), one of

The distribution network is shaped with 70 fibre feeder cables running from the centre. They are connected in the same way as trunk lines at the centre and then divide into 10 fibre distribution cables.

The subscriber loops are designed for simplicity and minimum consumption of power. The emitter consists of a laser diode. At the subscriber end, the transmitter consists of a Light Emitting Diode (LED). The receiver is a PIN diode followed by a trans-impedance amplifier. An AGC operating at the level of the 4096 KHz subcarrier ensures level regulation.

The specialised truck line transmits only one signal. A laser emitter and FDA receiver are used for the TV, videophone and digital links. Given the quality target, maximum permissible attenuation is about 20 dB. For the high link, transmitter LED and an APD receiver are used. Because of their own specific noise, laser diodes cannot meet the quality target of 75 dB.

French Telecom is now proceeding with the development of a derivative optical fibre cable. The derivative exchanges of Capbrete, Biarritz and Juan-les-Pins on the French Riviera were recently linked by 25 miles of cable. A 50-mile link will be laid between Antibes and Fort St-Jean in 1983. Another will cross the sea from the mainland to Corsica.

French Telecom engineers consider that the potential of optical fibre has hardly been exploited yet. In the long term, they estimate that one million simultaneous conversations could be handled simultaneously at a single link with light amplifiers installed only at intervals of several hundred miles.

This and other developments are the subject of a seminar on optical fibre technology, to be held in Biarritz in 1983.

ARTIFICIAL INTELLIGENCE

Iain Smith argues that conventional AI or optimisation approaches can be inadequate against rule-based systems

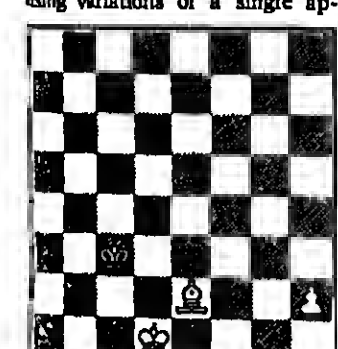
An expert system specialises — it doesn't know everything!

IN the wake of the widely-reported Japanese intentions for fifth generation computer systems, much has been written recently about expert systems and rule-based systems. The ordinary computer user may be wondering what is so new about these approaches, since many existing quite mundane systems perform their allotted tasks in an "expert" or efficient way, and contain many rules or algorithms built into them by the programmer.

This is undeniable, but the terms "expert" and "rule-based" have specialised meanings to the artificial intelligence (AI) community.

The term "expert system" has been defined by Donald Michie, Professor at Edinburgh University's Machine Intelligence Research Unit, as "a system whose goal it is to perform convincingly as an advisory consultant, exhibiting human expertise in a given domain with self-explanation of reasoning on demand." This is a broader definition than some AI workers would give, especially in two respects. Firstly, it says nothing about how the system might be built, and secondly it emphasises self-explanation. One other point worth noting is that expert systems are specialists in a given domain only - they should not be thought of as having a flexible wide-ranging intelligence.

In practice, however, most if not all systems which have been described as "expert systems" operate using variations of a single ap-



proach - the production system approach. It is for this reason that expert systems and production systems are sometimes regarded wrongly as synonymous. Production systems can be broadly equated with rule-based systems. The term "production" is stolen from Boolean algebra, and is nothing to do with manufacturing or production engineering. The study of expert systems, then, is largely the study of production systems.

It is worth examining briefly an example which illustrates the difference between conventional AI problem-solving methods and rule-based methods, the chess endgame. Traditional methods used by chess programs list what moves, counter moves, etc, are possible at any stage of the game and evaluate what the possible outcomes of those moves might be. The program will select the one which offers the largest guaranteed "gain". This is the maximin strategy beloved of game theorists.

In principle, then, computers could perform convincingly by analysing, and evaluating the merits of, all possible future moves and counter-moves. Because of the combinatorial nature of the chess problem and processing time limitations this is not possible and computers can analyse exhaustively only several moves per player in advance. This, in the middle game, is enough to enable the computer to out-manoeuvre even a very good opponent.

In the endgame, however, this look-ahead capability can be woefully inadequate, because the relatively uncluttered board allows the human player to analyse the broad features of the game and put into operation any one of a number of "rules". These rules may be the result of personal experience, sagacious intuitive reasoning, or other experiences (i.e. reading chess textbooks). Take for example the following rule, illustrated in Figure 1:

King immediately towards safety. Yet if he had available to him only exhaustive search methods, he could have required much more than a 12-move (including the opponent's moves) look-ahead capability before discovering what his best move was. Thus there are situations even in a very well-defined problem area such as chess where conventional AI or optimisation approaches are inadequate and it is more effective to incorporate relevant experience into the machine in order to cover those situations.

In order to equip the expert system with the human expert's rules, the human expert must be prepared to have his expertise transferred to the system

The rule-based approach can be seen as an avoidance of the hard AI reasoning from scratch; to put it more bluntly some purists might view it as a cop-out. Defenders of the approach would say that it is probably closer to the way humans actually think.

The first step in understanding how such rules are incorporated into production systems is to understand what is meant by a production. A production can be described as a condition/action pair of the form:

IF condition THEN PERFORM action

The two components are often referred to as the left-hand side and the right-hand side respectively. The first ingredient of a production system is thus a collection of productions or rules. The second ingredient is the database of current facts - this is accessed to find out whether or not a given production is instantiated - i.e. whether its condition is met. The database will generally have its state altered as a result of the performance of the action parts of productions.

The third ingredient of a production system is the executive. This decides which conditions are instantiated, selects one of those for action and acts upon it (or "fires" it). It then repeats the cycle, examining all conditions afresh.

It is important to the understanding of production systems to realise that control does not pass sequentially down the list of productions. A production system is not merely a list of IF... THEN... statements.

The operation of a production system can be visualised as a set of productions held waiting to be fired. As soon as an initial set of facts is known, enabling all left-hand sides to be evaluated, a production can be selected for firing. The set of firing in general enables more facts to be established which may well result in more productions being fired, and so on until everything which an expert could deduce from the initial facts has been deduced by the system.

This process could be seen as a kind of "deduction avalanche". A trivial example of such a process is given in Figure 2. One vital aspect of all this is that the productions, or atoms of expertise, can be given to the system in a piecemeal fashion, in general without tinkering with the logic of the executive. Contrast this with the traditional approach when some new piece of expertise has to be incorporated into the computer system - an insertion would have to be made in the correct part of the existing program and the surrounding control structures reworked.

The above description presents the basic theme of production

systems. There are many possible variations on that theme. One area of variation is how (if at all) the system interacts with the user during execution. Does it request values for a fixed set of data, or dynamically alter its questions as a result of previous answers? Does it give explanations on demand, as it would have to, to justify Michie's definition of an expert system?

Another set of variations concern how the system copes with uncertainty. After all, there are many areas of expertise where IF... THEN is better couched as

which might be called diagnostic or taxonomic. The expert is Mycin, developed at Stanford, which identifies bacteria in blood and urine samples and suggests possible courses of antibiotic treatment. It operates by conducting a question and answer session with the user until it is in a position to present a diagnosis and a suggested prescription.

One interesting feature is that it is probability-based and presents a list of candidate bacteria together with likelihood estimates rather than a single answer. Given the uncertain nature of the domain this is clearly necessary. Another feature is that it is backward-chaining. This is largely because human experts tend to work this way, eliminating the obvious suspects at the start of the session rather than asking questions, in an apparently purposeless way, about all manner of symptoms and test results.

A third feature is that the user can ask questions about its chain of reasoning - it can provide self-explanations on demand. These features taken together explain why Mycin is such a favourite with AI writers.

The second example is from a radically different area probably of more direct interest to most readers. The R1 production system was developed jointly by Carnegie-Mellon University and Digital Equipment, and is an expert in the configuration of DEC's VAX computers. Here the initial data is a (sometimes incomplete) BAX parts list, which R1 configures up into a feasible working VAX.

The first example is a great favourite with AI writers and illustrates a general problem type

This involves deciding which units have a functional association, where to place units within cabinets, the relative cabinet positions and what cables are needed. It is interesting that this problem might be thought to be solvable using more straightforward DP techniques. DEC, however, had experienced difficulty doing things the conventional way - yet R1 is now tackling the task successfully.

So what are the problems with expert systems? One is the so-called "knowledge engineering" problem - there are not many analysts or programmers who could start work on an expert system without special motivation and study.

Another is selling the idea to management without raising their expectations unduly; i.e. a proposed expert system should be "sold" to its sponsors on an investment, though promising, low profile project, not as the great white hope of a desperate user.

Another problem is software - it may well be that the most suitable language is one the DP manager has only vaguely heard of, like Lisp or Prolog, and it may not even run on the company's existing hardware.

Rule capture presents yet another obstacle. In order to equip the expert system with the human expert's rules, the human expert must be prepared to have his expertise transferred to the system.

Industry has hitherto been slow to spend money on expert systems, but this is probably caused more by lack of knowledge than unwillingness to innovate. It is hoped that articles like this one will provide some illumination on the subject.

The other main barrier has been the lack of availability of suitable tools, and this is being tackled by one or two small companies, for example Isis of London and Intelligent Terminals, set up by AI workers in Edinburgh.

Iain Smith is head of a software development group within British Telecom.

THE DATA BASE LEFT-HAND SIDES RIGHT-HAND SIDES

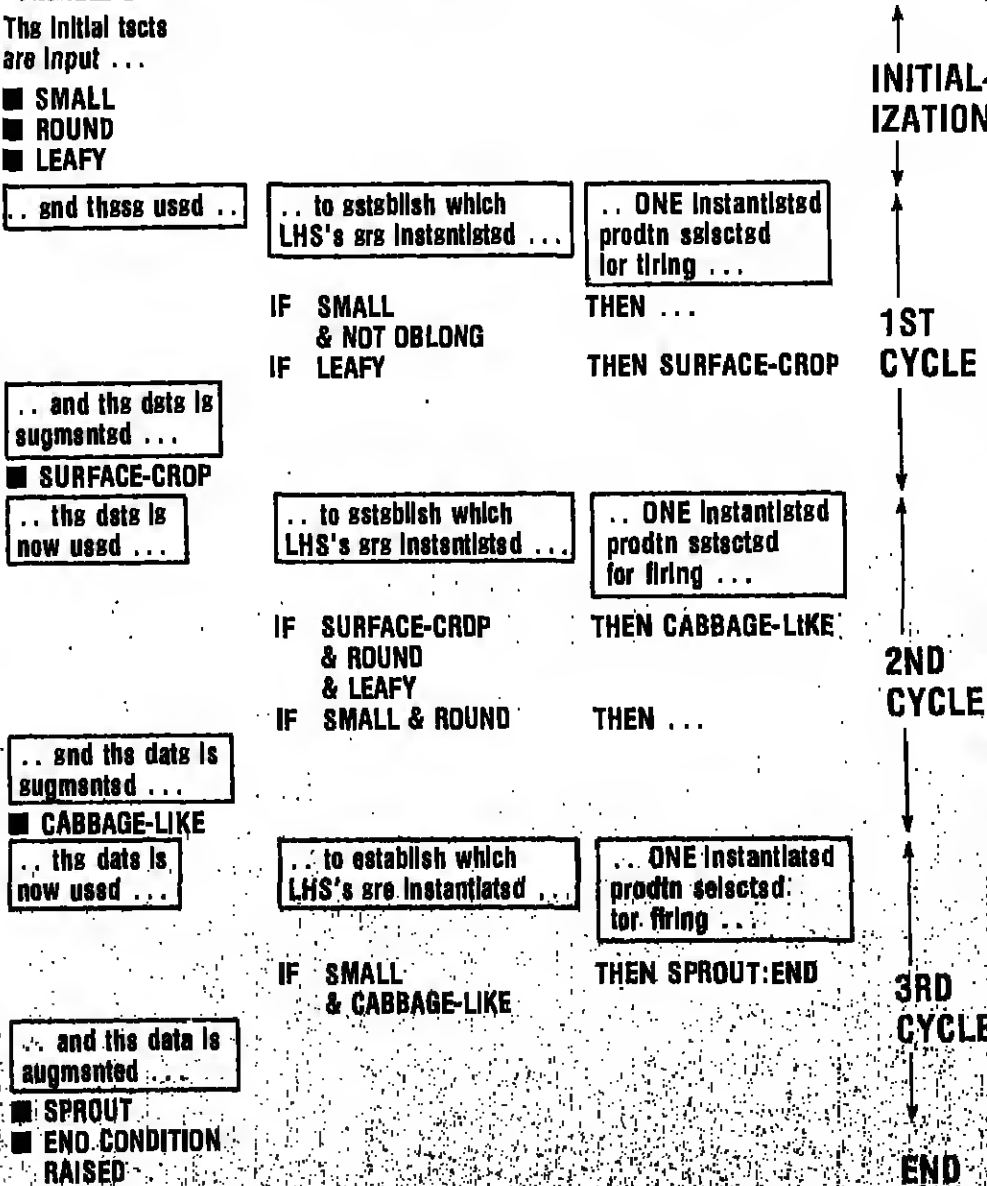


Figure 2. The operation of a simple production system. Further facts to a series of "and" clauses may be added, and the system will continue to fire rules until no more can be fired. The illustration shows the operation of a trivial production system, but it is not intended to be a serious example. The above description presents the basic theme of production

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10.00 Plenary session: The Middle East Computer Conference. Dr. A. H. M. Al-Mulla, Director General, Arab League Computer Centre.
10.30 Lunch
11.00 Plenary session: The Middle East Computer Conference. Dr. A. H. M. Al-Mulla, Director General, Arab League Computer Centre.
11.30 Plenary session: The Middle East Computer Conference. Dr. A. H. M. Al-Mulla, Director General, Arab League Computer Centre.
12.00 Lunch

Friday 15th December

09.00 Registration of delegates
09.15 Official opening
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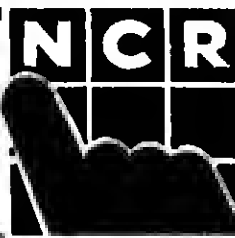
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(1807)

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(1809)

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Edward H Conder After leaving school Edward joined the army and was commissioned in the East Anglian Regiment as a platoon commander, before going to the Army university at Shrivenham, then a London external college. After obtaining his degree he spent a further five years in the Infantry before moving to the Royal Army Ordnance Corps. There he got involved with computing, initially on an EMI DEC 2400, then ICL 1900s. He spent three years teaching computing at the Defence ADP Training Centre. Edward eventually left the army as a Major to join Marconi Radar Systems.

Jill Ballinger After leaving school with 'A' levels in mathematics, physics and chemistry, Jill decided to take up a career in computing software. There followed six years with the Ministry of Defence developing program suites for various electronic research projects, during which she took HNC's in mathematics, statistics and computer studies. She then spent two years in private industry commissioning and trouble-shooting photocopiers.

Roger Baker Roger joined the field service department of Marconi Radar in 1962 having previously worked on microwave valve developments. He worked on the commissioning and system testing of Marconi radars. By 1970 he was Senior Site Engineer responsible for the commissioning and handover to the customer of complete mobile radar systems. He then joined Data Systems, where he was an early programmer working on radar control systems. He then joined one of the early radar control systems, where he was responsible for the maintenance and repair of the system.

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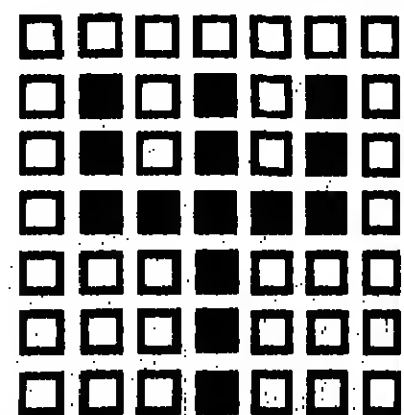
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It is likely that you will have had several years' analysis experience, but Analyst Programmers who wish to transfer to full-time analysis are more than welcome to apply for positions starting around £9,500.

Please ring us in confidence for an initial discussion, quoting ref. 893. Alternatively, write briefly or leave a message on our answering machine after hours.

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INNER LONDON EDUCATION AUTHORITY
CHelsea School of Art, HAMMERS ROAD, LONDON SW3 9LS
Tel. No.: 381-3844

COMPUTER TECHNICIAN GRADE 5

Required for the Department of Design Studies, Lime Grove, W12. The successful applicant will be experienced in microcomputing and familiar with BASIC and PASCAL languages. The post involves responsibility for developing computer usage and integrating it into the school's three CATS higher diploma courses in design subjects, with particular reference to computer graphics.

Applicants should have at least HNC, HND, Advanced City and Guilds, or equivalent qualifications and a minimum of 5 years' experience (including training periods).

Salary Scale: £8,000 to £7,017 plus £1,087 London Weighting.

Application forms are available from the college within 14 days of the appearance of this advertisement. IEA is an equal opportunities employer.

PROGRAMMERS REQUIRED

For single and multi users Micros for production/stock control and accounts working in BACS and C.

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Tel. No.: 811000 (Bucks) 740048 (1969)

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Business Studies Department

LECTURER II IN COMPUTING AND DATA PROCESSING

The post will be available from 1 January 1983.

Salary Scale: £8886-£11022 with possibility of increments being allowed for relevant experience.

For further details and application form apply to the Principal, Grantham College for Further Education, Grantham, Leics. Forms should be returned as soon as possible.

PASCAL NEW YORK/LONDON BANKING

CONTRACT OR PERMANENT EXCELLENT REMUNERATION

Offering excellent training and career opportunities, this London-based banking systems Consultancy requires a strong Pascal micro programmer, who is commercially-minded and flexible—working in New York initially for about 3 months with future systems development in London and possibly Frankfurt and Zurich.

Contact Amanda Lovell on 01-836 8144. Quoting ref. no. 2784.



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17 BEDFORD STREET, COVENT GARDEN, LONDON WC2E 9HA TEL: 01-536 8811

The real time to use your 'wares!

Whether you specialise in **HARDWARE** or **SOFTWARE** or a combination of both, your experience and ambition is urgently required by our client, a major force in the field of real-time computer-controlled systems, currently undergoing significant expansion.

Obviously you are required to be technically competent, but if you can also demonstrate an awareness of your product market and an outgoing communicative personality you will certainly qualify for a place in their friendly team developing exciting real-time projects in the UK and overseas.

Salaries are negotiable and the company invites you to indicate what you feel is your worth.

Specific vacancies for good degree or HNC-level candidates are as follows:

to £13,500

SALARIES COMPLETELY NEGOTIABLE

SENIOR SYSTEMS ENGINEER/ANALYST

A live-wire personality is needed to provide the technical authority and analyse the requirements of projects or products for development by a multidiscipline team. Experience should ideally be related to telemetry control or traffic management with significant communication content, typically on DEC or other mini-based systems rather than mainframes. Practical experience in the field or on system test is essential, as is an appreciation of hardware and software design concepts.

SENIOR PROGRAMMERS

A great opportunity for accomplished real-time programmers who would like to lead their own project teams developing advanced hardware and software systems. Three years' experience is required in Assembly or high level languages: CORAL, PASCAL or FORTRAN in particular. Additionally, knowledge of communications software, PDP/11-RSX-11M systems or INTEL series microprocessors would certainly recommend you for interview for one of these key positions.

SENIOR ENGINEER

In overall charge of a team of engineers already on site, the Senior Engineer will be required to pursue the development of Automatic Control systems. The applicant should be familiar with electro-mechanical development (especially sequential controllers), induction loop control and microprocessor hardware and ideally hold a Degree or HNC in Electronic/Electrical Engineering.

PRINCIPAL HARDWARE ENGINEER

Reporting to the Head of Department, you will lead a team designing Magnetic Card Transmitters and Interrogators. The team leader will also be responsible for all aspects of material and technical control of each project, liaising with both Mechanical and Electrical Drawing offices, Quality Assurance engineers and Technical Publications. Experience in both analogue and digital design is essential, knowledge of magnetic 'record' and 'read' principles desirable. Ideally applicants should be up to Degree standard in Electronic Engineering with a reasonable understanding of Low Level Languages.

SENIOR ENGINEERS (APPLICATIONS)

Application Engineers, reporting directly to the Principal Engineer, are sought to expand the Magnetic Card Interrogation products department. Candidates should be familiar with Assembly level languages, together with the full range of microprocessors, and ideally will have had some supervisory experience at Team Leader level.

All these positions are based in SOUTH HERTS and carry an extensive range of benefits including five weeks' holiday, pension, life assurance, sports and social club and opportunities for overseas travel.

For further details and an application form please contact JOHN GRAHAM or KEN TATE on 0494-30517 or write to the address below.

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LWC

London West Computer Recruitment

Systems Software Consultant Berkshire

package £15-18K.
+ car

An outstanding opportunity exists for an experienced IBM systems software technician to provide pre and post sales consultancy support on a range of successful software products.

The work will involve technical presentations, demonstrations and training, customer support and product development. Some UK and European travel will be necessary. Applicants should have a minimum of 2 years' MVS experience and knowledge of either CICS or IMS, plus the ability to communicate effectively. This well established company offers attractive benefits including a high salary plus a monthly company performance bonus. Relocation assistance is available. Ref. 512

Real Time Analysts and Senior Analysts

North Wiltshire £9-10.5K.

A substantial systems company, a subsidiary of a large group, seeks several analysts and senior analysts for work in the energy systems market on telecontrol and real time process applications for public sector customers in the UK and overseas. Most work is undertaken on DEC PDP/VAX in RTL2, CORAL or FORTRAN 77, and on micros including Intel 8085, RCA 1802 and Z80.

Applicants must have a minimum of 3 years' relevant experience and be qualified to a Degree or HND/HNC level.

Good promotion prospects are offered by a company located in a pleasant North Wiltshire town. Relocation assistance is available. Ref. 514

A/Programmer and Programmer

Bristol c.£8K.

Vacancies exist for an analyst/programmer and a programmer with a large national food retailing organisation using a Honeywell 64/30 running under GCOS. Other mini computers are also installed. The analyst/programmer will ideally have 3 years' d.p. experience including work on Honeywell GCOS and familiarity with commercial applications, and the programmer should have a minimum of 12 months' experience. Ref. 513

Write or telephone: **London West Computer Recruitment**
Evergreen, Dauntsey, Chippenham, Wiltshire SN15 4JA
Telephone: (0249) 891114

your appointments register

Programmers

NCR/IBM/COBOL to £14K
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COBOL/PL1/OS/CICS/IMS to £13K
Commercial - H Counties - Midlands - Man. chaster

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Commercial Accountancy - Hampshire

HONEYWELL to £12K
Systems Programming experience - Middlesex

DEC/HP/WANG/DG to £12K
Basic - Cobol - Barks - Surrey

Analyst/Programmers

BURROUGHS/COBOL to £14K
Commercial - Surrey

IBM/RPG2 to £10K
London

IBM/UNIVAC/ASSEMBLER to £12K
Online - Databases - Surrey

Hardware/Support

APPLICATIONS ENGINEER to £14K
Systems/Peripherals - Based N. England

TECHNICAL SUPPORT to £13K
Pre and Post Sales. Nationwide

Systems Analysts

IBM/MCL to £12K
Stock Control/Commodity Control - London

CAD/CAM to £16K
Real time - Modelling - Man - Essex - South West

IBM/BURROUGHS to £15K
Commercial Accountancy - London/Surrey/Manchester

Software Engineers

CORAL/PASCAL/MASCOT to £13K
Communications - Sussex/Middlesex

DEC/CORAL/PASCAL/MASCOT to £13K
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PDP/VAX/INTEL to £13K
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Senior Appointments

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Salary to £10,500

Berkshire

Our client is a major British company in the Computer Services industry. Their continued success is built upon providing users in a variety of industries with well designed computer systems. The accent is on professionalism and the company ensure that their staff are equipped with the necessary skills by a continuous programme of training and staff management.

Candidates should possess at least 1 years programming experience part of which should include some of the following:

- a) COBOL on ICL or IBM hardware, or RPG II/III on IBM System 34/38
- b) As you will be working closely with clients, candidates should possess good communicative skills. At the more senior end of the scale, candidates should possess experience of the design/specification of complex programs. Additional supervisory experience would also be of interest to our clients.

For the ambitious, the company offers an exceptional career opportunity:

- a) to broaden experience of hardware and software on a variety of development projects
- b) to develop professional and personal skills and to progress into senior technical or management positions

Benefits include salary and promotion reviews every six months and assistance with relocation expenses where appropriate.

For more details, please telephone Andrew Cousins or write enclosing a full C.V.

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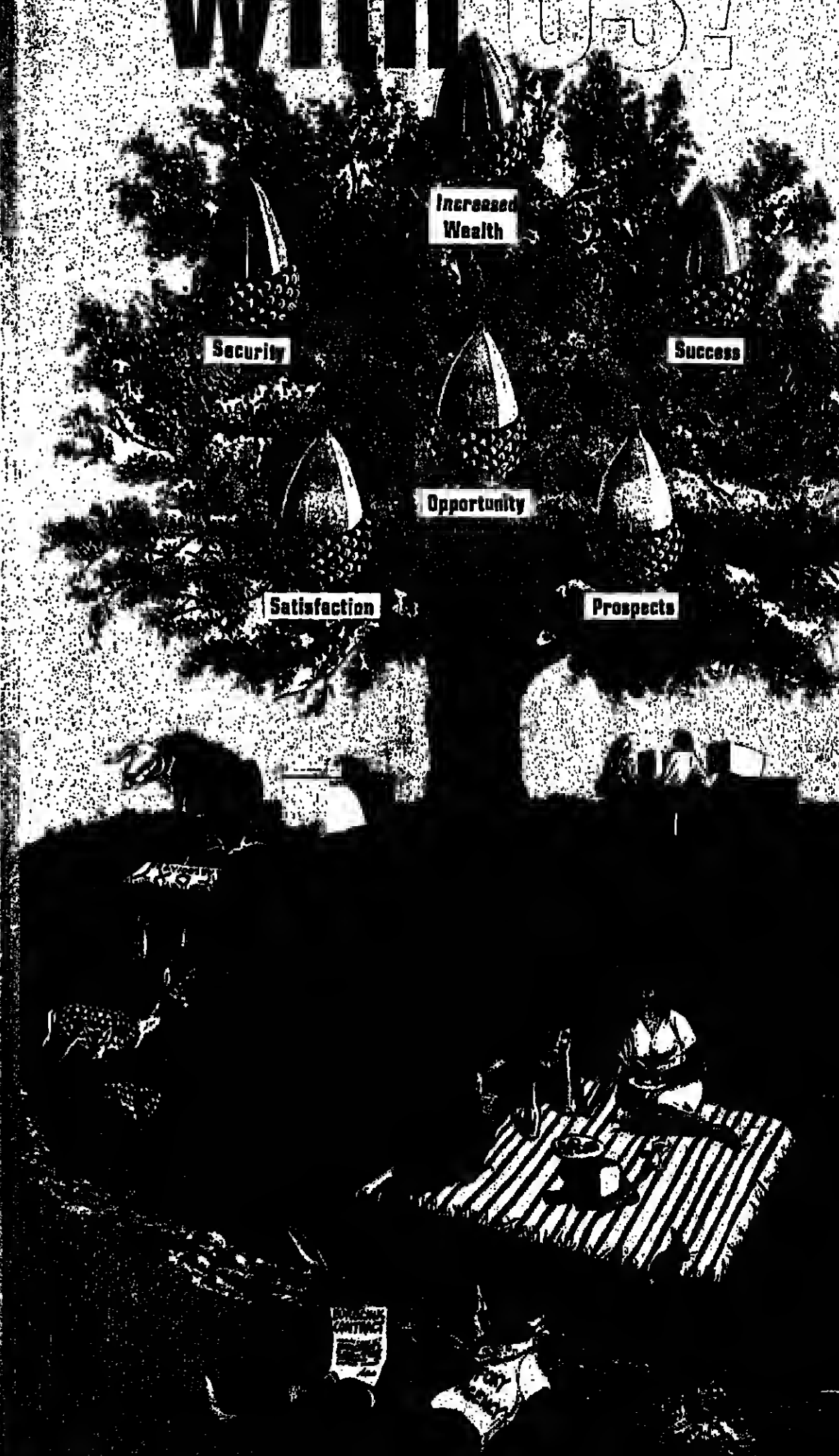
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Progs+Anals	DL1	COBOL	S. East
Consultant	Typesetting/Word Processing		London
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DBA	DL1/IMS		Surrey
	MARK IV		Saudi

AnalProg+Progs	PLAN	London
Prog	COBOL	E London
Prog	COBOL	London
Prog	COBOL	Surrey
Prog	COBOL	Surrey
Prog	COBOL	Herts

PROGS & AN/PROGS to £11,500 HP COBOL/BASIC

We are currently recruiting for a number of HP users in C. London and the home counties. The minimum requirement is 12 months' experience on either HP3000 or HP250 hardware, however the more senior positions will require a solid DP background. The companies range from software houses to large international concerns and therefore offer a wide range of prospects and perks.

PROGRAMMERS to £13,000 COBOL

A software house based in Herts have a requirement for experienced COBOL programmers. A minimum of 4 years' of general commercial applications including accountancy, banking and financial packages is expected. Applicants should not only be mature but also very versatile as different hardware is in use at clients sites, who are mainly based between Herts and C. London.

PROGRAMMER to £8,500+ RPG SYS 38 Training

North Surrey based company has identified a requirement for an RPG programmer. They have been a SYS 38 user for a year and are prepared to give the necessary training to existing RPG II programmers. The minimum requirement is 1 1/2 years' RPG preferably from a SYS 38 environment. As well as SYS 38 RPG III training the client encourages early exposure into systems.

ANALYST/PROGRAMMER to £10,000 RPG II

A manufacturing concern with its head office based in Bucks has just installed a System 34 with MAAPICS. They are a first time user and are in the process of writing systems and converting manual systems. In return for 1 1/2 years' RPG II the client can offer an excellent starting salary and genuine ground floor opportunity in a small department.

PROG/ANALYST to £8,000 CMC

A well established bureau is currently recruiting a programmer with around 1 1/2 years' experience of Database within a CMC environment. The client will consider other candidates if they have a solid commercial background with COBOL or BASIC. This is a good opportunity for career development into analysis due to the close liaison with the users in this post.

PROGRAMMER to £8,000 RSTSE/BASIC

A systems house specialising in Dec systems has a requirement for two Basic+ programmers. Applicants should have around 18 months' Basic+ gained in any commercial environment. This is an ideal opportunity for programmers to move into VAX systems as the client is installing several VAX machines.

PROGRAMMER to £10,000 H/WELL L66 IDS

Development orientated installation is seeking to recruit a programmer with at least 18 months' H/well COBOL experience. Candidates should be familiar with IDS database programming techniques coupled with TDS and associated on-line programming facilities. In return, the client is willing to offer a realistic career path, excellent starting salary and extensive development project work.

ANALYST/PROGRAMMERS to £9,000 ICL VME/B

Futuristic company based in N. Surrey is currently seeking to further enhance its existing development teams, hence the need to recruit programmers and A-programmers. Applicants should possess a minimum of 18 months' VME COBOL experience together with some exposure to systems and on-line programming techniques. Standard large company benefits apply.

PROGRAMMER to £7,500 UNIVAC COBOL

A well known company based in rural surroundings North West of London require a Programmer who has 12 months' experience of COBOL on Univac 90/30 systems utilising OS3. There is a lot of development work stemming from the current conversion from Univac 90/30 to the Univac Sys 80 so this can be considered a good opportunity to gain experience on the latest hardware.

404 4821

Apex

Apex Computer Recruitment Ltd.

London Office: 59 Groy's Inn Road, London WC1X 8TL Tel: 01-404 4821.
Brussels Office: Rue Gotti de Gomond, 24, Uccle 1180 Brussels. Tel: 010 322 377 4193.

Ambitious Analyst/Programmer with management in mind

Basingstoke: Publishing: Package to £10,000

Our client, a household name in paperback publishing, wishes to strengthen its small DP team.

You will be responsible to the Computer Manager for the day-to-day control of development activities and 3 support staff in a fast changing absorbing environment where facilities are virtually used to capacity.

This appointment is seen as a development role with positive prospects of promotion to Computer Manager for someone who makes their mark.

You should have experience of on-line applications, ideally in a PDP 11 environment operating under RSX 11M+, and have at least two years' programming experience in a high-level language with some experience in operating. Formalised business analysis experience is required. Applications include on-line order entry, stock accounting, integrated ledgers, statistics and teleordering with future applications including an authors' royalty system.

Earnings quoted include an attractive salary plus bonus scheme. Major company benefits apply.

Please write with full details. These will be forwarded direct to our client. List separately any companies to whom your application should not be sent. Ref: FY1221.

This appointment is open to men and women.

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Pergamon InfoLine is on target to become a worldwide force in the fast-growing information industry. With the full backing of the Pergamon-8PCC Group, Pergamon InfoLine has developed a wide range of advanced services from Online Information Retrieval to Electronic Publishing. InfoLine operates a VAX 11/780 with fourteen gigabytes (yes gigabytes) of online storage. The following new posts have been established to support our programme of rapid expansion in 1983 and onwards.

OPERATIONS MANAGER Circa £11,000

This appointment carries day-to-day responsibility for the InfoLine computer facility, including establishing and maintaining operational procedures, planning and supervising hardware acquisition and the development of telecommunications links to national and international networks. Applicants should have supervisory experience in a medium size computer installation. Preference will be given to applicants with knowledge of VAX operating systems.

SYSTEMS PROGRAMMER Circa £9,000

To take responsibility for the maintenance of operating system software, work closely with applications programmers and implement production procedures using DCL and Macro. Detailed knowledge of VMS is required plus the ability to deal with data from non-DEC systems. The successful applicant must be able to demonstrate a flexible approach to problem solving.

ANALYST/PROGRAMMERS x 2 Up to £9,000

Successful applicants will work on a wide range of applications, handling and distributing large volumes of information. Analyst/Programmers must be able to accept full responsibility for assigned projects. The jobs include a limited amount of coding in FORTRAN. For the most part analysts use InfoLine's information management and retrieval software to design and load databases of scientific and technical information for online access. Some experience of information handling would be a positive asset. Practical programming experience is essential preferably in a DEC environment.

For further details and application forms write to:
Robert Browne
Pergamon InfoLine
12 Vandy Street, London EC2A 2DE

ASE VOLVO BM

PROG/ANALYST to £8,000 RSTS/E BASIC+ +RELOCATION

Our client, Anglo Swedish Equipment Co Ltd are the sole U.K. importers of Volvo construction equipment. This appointment will be based at the head office at Great Yeldham, a rural part of Essex. The current hardware is a DEC PDP 11/70 running under RSTS/E.

Applicants should have a reasonable education background but more importantly the personality and presence to communicate with users effectively. The technical requirement is a minimum of 1 1/2 years BASIC+ and/or BASIC+2 under RSTS/E that should have been gained from a solid commercial background. The position would suit a programmer who wishes to progress into analysis with full training and support provided. Most of the work will be development, in fact, several crucial projects have been identified but have not passed the user stage yet.

If you feel that you can meet this stimulating challenge and wish to relocate to the Essex countryside with low housing costs, please contact SEAN ORSLER for further details.

Apex Computer Recruitment Ltd.

404 4821

London Office:
59 Groy's Inn Road,
London WC1X 8TL
Tel: 01-404 4821.

Brussels Office:
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24, Uccle 1180 Brussels.
Tel: 010 322 377 4193.

Shubrooks

If you have the experience outlined, please contact Bridget Kotchie,
Shubrooks Recruitment Services,
Almerna Priory, Almerna Road, Lyne,
Nr. Chertsey, Surrey KT18 0BH.
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ICL Operator E. London **£6.50.5K**
An ICL installation requires an Operator with at least 8 months' GEO II experience to work on a 2-shift system.
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Operator Berks **£6.5K**
Our client wishes to recruit an operator for a Hewlett Packard Series 3000 installation. The ideal candidate will have at least 2 years' experience and work on a 3-shift basis.
Ref: AM630/CW

MVS Operators City **£6.5K +**
MVS JES2 Operator and Senior Operator are required by this installation to work on a 3-shift system.
Ref: AM770/CW
Contact Anna-Marie on 01-836 8411 regarding the above positions.

Production Controller OS/MVS W. London **£6.5K**
Shift Leader MVS JES2 W. London **£7.5K**
Operator MVS JES2 W. London **£7.5K**
This IBM 4341 installation seeks your expertise to complete the team. You should have a minimum of 2 years' experience for the Operator or Shift Leader requirement and 5 years for Production Control. As Production Controller you will be required to work days only.
Ref: MM625/CW

PDP RSX Operators City + Middlesex **£6.5K**
VAX VMS Operators
We have several immediate requirements and are seeking at least 1 year's experience from a commercial or academic environment.
Ref: MM743/CW
Contact Madeline on 01-836 8411 regarding the above positions.

Junior Operator S.E. London **£6.5K**
Excellent prospects for young person with good educational background and 8 months' Honeywell Level 64 GCOS experience.
Ref: LR843/CW

Operator Cambs. **£5.2K**
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This scientific site requires your Prime expertise. Operator 2 years' min. Prime experience. Ops. Controller with Shift Leader background on a Prime site.
Ref: LR839/CW

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Ref: LR849/CW
Contact Lynne on 01-836 8411 regarding the above positions.

Co Operators

VLI House, St. Martin's Lane, London WC2N 01-836-8411

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Preferably a trained graduate with teaching or instructing experience and experience of commercial data processing, preferably in micro and/or mini computers. A further advantage would be a knowledge of Real Time Programming.

Salary up to £11,022 plus £231 "fringe" allowance.

Day-time part-time teaching posts are also available for the above subject areas and COBOL programming.

Forms and further details from the Principal at the above address.

Closing date Monday, 20 December.

11891

UNIVERSITY OF KENT AT CANTERBURY
RESEARCH FELLOW IN CAD/INTEGRATED CIRCUIT DESIGN

Applications are invited for the post of Research Fellow in connection with an investigation funded jointly by the SERC and the University into computer-aided design of digital systems. The successful applicant will be required to develop and mount CAD packages for the design of digital systems and integrated circuits for use in the Digital Systems Laboratory. Candidates will be expected to have experience in high-quality software production and/or the UNIX operating system would be desirable. The appointment will be for two years in the first instance within the salary range £5,375-£8,510 on the Grade 1A scale. Application forms and particulars may be obtained from the Senior Assistant Registrar, Faculty of Natural Sciences, Canterbury, Kent, CT2 7NA. To whom completed applications should be returned by December 15, 1982. Please quote Ref: A277809.

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BURROUGHS B8800, CANOL, COBOL	Surrey	3 months
Programmers HONEYWELL Level 66, GCOS, TPS, OM IV, IDS	Wilts	6 months
Programmers HP COBOL (Image, query, view)	London	3 months
Programmers Others Hardware Evaluation (Univac)	London	3-6 months
Consultant	London	3-6 months

Contact Lauren Crowe

BOMARC 01-402 0995

60/49 Queen's Gardens, London W2.

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Contact Amanda Lovell on 01-836 8144. Quoting ref. no. 2783.



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If you are a dynamic senior analyst or project leader with 3-4 years S/34 experience and either some S/38 experience or a desire to train on this machine, you would be aiding in the implementation of a large financial development. The salaries offered range from 10-14K plus car and there are opportunities from European travel.

Call Nick Clements on the number below for further details.

ICL ANALYST/ PROGRAMMERS £7-10K London

We are looking for expertise in ICL COBOL coupled with VME, DME, TPS and IDMS, for a well respected client in the financial sector. A minimum of one year's experience is all that is necessary to apply for this opportunity, although additional technical skills will, obviously, be an asset.

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COMAG

PROGRAMMER/ANALYST

Strong Cobol background plus Database experience

Salary: Circa £10,000 p.a.

Location: Uxbridge area

Our client is Comag, who are the largest independence magazine distributors in the United Kingdom, with world-wide distribution interests. Their Systems Development Group is based in West Drayton, and a Database system using TOTAL has been developed.

Comag now wish to recruit a programmer/analyst who will:

- ★ have between two and three years' Cobol experience
- ★ have had some exposure to Database
- ★ enjoy the challenge of working in a small team where initiative is welcomed
- ★ be anxious to develop analytical skills

Any candidate with experience of TOTAL would have a significant advantage. Future developments are significant. Comag use management services as an integral part of their company development, and the company is totally dedicated to data processing.

This is a particularly interesting opportunity for somebody who, whilst enjoying the small team environment, will benefit in experience terms from the major computer developments that are taking place. If you feel that you could make a contribution in this environment please send curriculum vitae to John Goldsmith.

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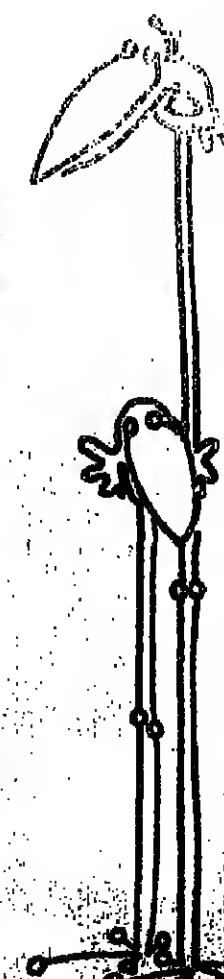
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Our client requires both in-house and field engineers. Junior candidates will possess ONC or above and experienced engineers component level ability with two years exposure to minis and/or micros. DEC experience will be of particular interest.
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ANALYST/ PROGRAMMERS £12K

London + Home Counties
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Action Line ring 01-637 9611

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PROJECT MANAGEMENT HAMPSHIRE

A leading Systems House has a requirement for Project Managers with significant management experience within fixed price implementation and turnkey systems areas. Applicants should have 10 years' Data Processing experience within communications and either a DEC, ICL or IBM background. TM48/3

SYSTEMS SOFTWARE BERKSHIRE

A fast expanding company in the field of T.V. broadcasting technology has a requirement for Team Leaders of at least 3 years' experience. Your background should include as many of the following as possible:

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POP11
VAX
INTEL 8088

PARCAL
CORAL
ALCOL
ASSEMBLER

There is also a requirement for junior programmers with about 1 years' experience in some of the foregoing. TM48/4

TECHNICAL WRITER BERKSHIRE

Our client is seeking candidates for a technical writer position. Applicants should have a technical background including technical writing. The work involves micro processors, data communications and high speed local area networks. TM48/5

COMMUNICATIONS DORSET

A leading communications company is looking for senior and principal software engineers with a good real time background to work on the very latest developments in communications technology. Applicants should be of degree level, with a minimum of 2-4 years' experience in communications control or data communications. Generous salary and an exceptional relocation package. TM48/8

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— Defence Systems
— Mesoc
— POP 11

— CORAL
— VAX
— INTEL 8088

DLM48/7

TECHNICAL WRITERS SCANDINAVIA

Our client, a growing computer manufacturer, is seeking candidates for technical author/co-ordinator positions. Candidates should have a technical background including technical writing and must be able to communicate in English both written and verbal. The work involves micro processors, data communications, and local network. OLM48/8

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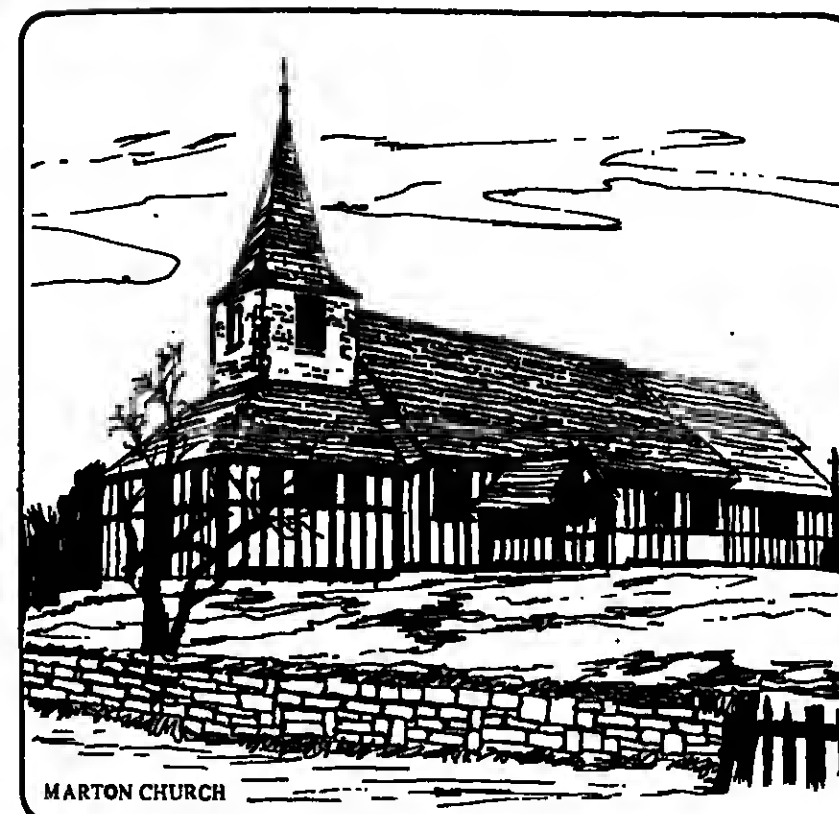


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Experience required:
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To be initially involved in a new system on a new VAX 11/780 and 760 configuration (currently being installed), and to work in a Technical Support role alongside the application development team. The application is a corporate chemical structure system with interactive graphical search features to support the Research function.

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Experience required:
Applicants should have a minimum of five years in computing, three years programming and have database/system design experience ideally gained across more than one computer manufacturer preferably including DEC/VAX.

BENEFITS
In addition to the salary other benefits include up to five weeks holiday, profit sharing and bonus payments, an attractive relocation package and good career prospects.

THE INSTALLATION

The Division operates a number of mainframes with about 450 terminals and all the systems software and hardware associated with one of the U.K.'s largest Pharmaceutical research and production operations.

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THE POSITIONS

Systems Specialist (Communications)
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IBM GSD experience essential

Our client is a major international company based in the London Home Counties. A large IBM user, our client has in addition to substantial mainframe equipment a number of System 34/38 installations in Europe. They are now looking for a Manager who, although based in the United Kingdom, will be responsible for ensuring development and maintenance of systems at these remote locations. The successful applicant will control a small successful group of analysts and programmers and will be expected from time to time to visit European locations. Our client is looking for two important attributes — technical skills and people skills. The successful candidate

Location: London Home Counties

will be expected to deal with many different levels of management and in addition to generating the right atmosphere within his/her own group will also be expected to engender confidence amongst users. Flexibility in many aspects of this job is very important indeed.

The career opportunity is a good one. As previously mentioned our client is a large IBM user and therefore the longer term prospects could be very good indeed. A sensible starting salary is offered plus a company car and other benefits. If you are interested in this opportunity, and feel you have the right kind of experience, please send curriculum vitae to John Goldsmith.

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(1982)

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Starting Salary: circa £11,000 p.a. Camberley, Surrey

Our client is GSI, one of the largest and most successful European computer service companies. Their United Kingdom headquarters are in Camberley, Surrey, and they now wish to recruit an experienced COBOL programmer to play a very important part in the future development of their business. Currently GSI are operating an IBM 370/145 under DOS/VS, but this is going to be upgraded early in 1983 to an IBM 4341 using DOS/VSE under VM. They are linked through a European network to two large data centres in France, one of which currently operates an IBM 3081 under MVS/SP and the other an AS 7000 under VM.

Our client would like to meet a thoroughly experienced COBOL programmer who ideally would have a knowledge of Assembler and Data Base, but this

is not an essential requirement. Although IBM experience is preferred, applicants with COBOL experience in other hardware environments could well be serious candidates.

Our client's United Kingdom headquarters are in a very attractive part of southern England, where it is still possible to buy housing at reasonable prices. The position could offer a first-class career opportunity to the right applicant. There are significant plans for expansion in the near future, and this position is considered an important one in that development plan. If you would like to know more about the opportunity offered by GSI and feel that your COBOL experience matches the requirement, please contact John Goldsmith to discuss the matter further in order that an interview can be arranged quickly.



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Applicants (male or female) should have an honours degree in Science, Mathematics or Engineering. Preferably with some programming experience. The salary scale is £3,081-£5,488, with a minimum of £3,588 for a 1st or 2nd class honours degree, including London weighting.

Application forms from the Personnel Department, Queen Mary Nurses' Home, 20 Page Street, SW1 (Tel: 828 9511 ext 2103). If you wish to send a letter as well supporting your application, please do so. Closing date: 17 December 1982.

Further details about the post from Dr V. D. Preston on 828 9511 ext 2828. (1808)

UNIVERSITY OF CAPE TOWN Systems Programmer

Applications are invited for the above post in the University Computing Service for appointment as soon as possible.

The Computing Service operates a UNIVAC 1100/81 system providing batch, remote batch and interactive access for staff, students and the University administration. Currently the communications network comprises 5 RJE stations and some 80 terminals, many of which are supported via a RJE 3 communication.

The successful applicant will be required to assist in the maintenance and modification of the operating system, to design and implement specialised software and to provide technical support for both Computing Service personnel and general users of the system.

Applicants should have appropriate experience in a large multi-programming environment and be proficient in both on assembly language and high level languages. The University has experience with UNIVAC systems software will be an important advantage. The starting salary will be in the range R1 250 to R1 875 per month, depending on qualifications and experience. In the case of exceptional qualifications the scale might be further increased. In addition a service bonus of nearly one month's salary is payable annually.

We offer job satisfaction, a stimulating environment and use of University facilities. Staff benefits include a 75% remission of tuition fees for dependants at UCT, generous leave privileges, a housing subsidy subject to State regulations, pension fund, medical aid, group life assurance and a contribution towards moving expenses.

Further information may be obtained from: Mrs J. van der Merwe, SA Universities Office, Chichester House, 278 High Holborn, London WC1V 7HE, or from the Director, Computing Service, University of Cape Town, Private Bag, Rondebosch, 7700, South Africa. Applicants should submit the names and addresses of two referees whom the University may consult and give full personal and career details, including present salary.

The University's policy is not to discriminate on the grounds of sex, race or religion. Further information on the implementation of this policy is obtainable on request.

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Applied Communications Inc., a US Corporation with offices located in key centres in the USA is a major Systems House specialising in on-line systems on Tandem Non-Stop Computers. ACI has installed more than fifty sophisticated switched networks, a significant proportion of which are in the Financial sector. The UK subsidiary is expanding both its Products and Systems Divisions. The Products Division specialises in the definition, specification of requirements, system configuration, testing, installation and subsequent support of comprehensive software packages aimed at the Banking, Financial and POS markets. The Systems Division develops customised solutions to client requirements from Project initiation through to Customer acceptance. These, too, are Tandem Non-Stop Implementations.

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£12000 - £14000

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Applicants should have approximately 6 years Programming/Analysis experience with specific skills acquired in at least one of the following:

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To discuss your future career with Applied Communications, telephone Alan Moxon or Chris Peat on 01-423 2731. During evenings or weekends telephone Alan Moxon, Whippsnade (0582) 873106 or Chris Peat, Walton-on-Thames (08322) 22844 or write to: Manager, Customer Services, Applied Communications Ltd, 1-9 Peterborough Road, Harrow, Middlesex HA1 2AZ.



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Salary is negotiable according to ability and experience but will reflect the importance of the post. Benefits include BUPA, company car, company pension scheme and generous family bonus. Please write in confidence with full CV to:

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Application forms may be obtained from the Principal, South Shields Marine and Technical College, St. George's Avenue, South Shields, Tyne and Wear, by sending a stamped addressed envelope. Completed forms should be returned to the Principal as soon as possible.

SALES BIT

Quality of Management — 33

A successful meeting is never boring

SALES meetings must be entertaining in order to have a chance of success; and success can only be measured in the subsequent increase in confidence and enthusiasm of the participants.

Perhaps it would be a good idea to qualify what I mean by entertaining. First and foremost, sales meetings should never be boring and that in turn means they should not be entirely predictable or unvarying in pace; they should involve all the participants and stimulate their interest by continually changing means.

Clearly, every sales meeting unavoidably includes familiar topics such as sales performance to date, items from previous meetings (yes, do have minutes, that way promises made and actions agreed upon are less likely to be overlooked), competitive reports, and so on; but such dialogue is quite acceptable if it takes the form of supporting programme around an interesting main feature.

There are many sources and varieties of subjects which can be introduced to form the nucleus of a sales meeting that can both involve the participants and stimulate their interest.

Here are a few ideas for your consideration: Whenever one of your sales people wins a really significant order it can be entertaining and educational to get the salesman concerned to give a presentation to the rest of the salesforce.

Learning how he approached the situation from first contact to close, appreciating the problems and opportunities he experienced along the way, getting to know how the company's supporting departments played their part, and so on, can be extremely informative to all concerned and many can gain selling ideas that will benefit them on future occasions.

Added to which, most salespeople enjoy the kudos of being publicly acknowledged as a winner and gain real pleasure from telling their colleagues "how it is done".

From the participants' point of view it has the added value of laying down the challenge of whether or not they will also be up there showing that they can be a winner too.

It is fairly common for sales people to complain about the quality of sales support, but usually this is due to an inadequate understanding of the responsibilities and resources of the people concerned. This can often be overcome by persuading a senior member of the department concerned (preferably the top man) to give a presentation on the function of his department, its responsibilities to the salesforce and clients as well as highlighting any problems that may exist at the time.

Such a person must have the character and capability to present his case convincingly and also handle effectively questions and comments that may come from his audience.

While this kind of session

will give the salesforce a better appreciation of the role of those supporting them it can often lead to a "moaning session". This is not necessarily a bad thing, so long as the topic remains in the general context rather than the particular. Spending precious time griping about an isolated incident is of no real value to anyone. The outcome of all of this is that both sides, rather than just the salesforce, learn about their mutual problems.

Although the individual salesman can gain an understanding of why a last-minute alteration of an order is extremely costly and disruptive, the production manager will better understand the financial, political and emotional implications of needing to do so.

Done well, this can greatly enhance interdepartmental relationships and understanding; done badly, it can set back the quality of sales support by several light years!

It is an event that needs sensitive selling to the manager concerned and careful pre-planning.

Few companies have the resources to provide films specifically designed for their own use or related to their products, in their marketplace against their competitors. However, there are companies that can provide a variety of films covering most selling situations.

If the sales manager can identify one or more areas of selling technique where he believes a significant proportion of his salesforce could do with help, there are likely to be films available which highlight the problem and propose a solution, albeit in a general context.

While the antics of John Cleese or some faceless American actor may prove to be entertaining in themselves, the real value comes from discussion that must be stimulated immediately afterwards. This is best achieved by telling the audience, before the film is shown, what it is about, particularly points to watch for, and reminding them that they will be expected not only to discuss the techniques involved but also to relate them to their own products.

This is where the benefit is really achieved. If you want to create a questionnaire to test the awareness of the participants, that might not be a bad idea, particularly if you concentrate on the primary areas of disagreement!

Alan Williams

Alan Williams

Alan Williams

Alan Williams

Alan Williams

Alan Williams

Alan Williams

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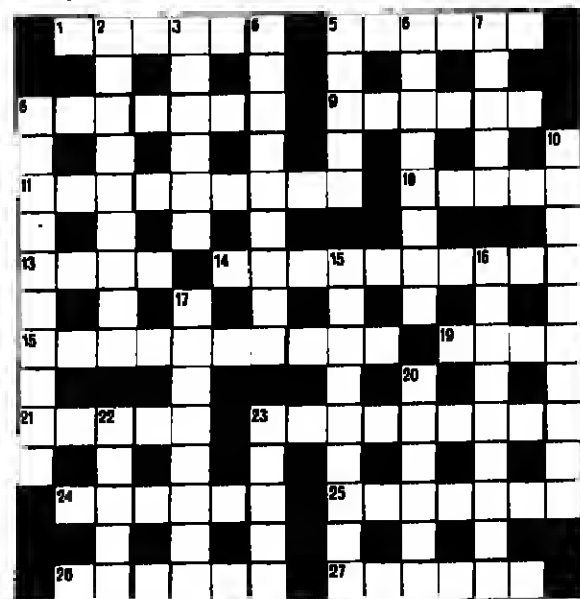
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CROSSWORD**Prize Crossword No 35**

Compiled by Alec Robins

A prize of £10 will be awarded for the first correct entry opened. The second and third solutions opened will receive £5 each. Entries to Crossword Competition, Computer Weekly, Quadrant House, The Quadrant, Sutton, Surrey, SM2 5AS, by first post Friday, December 10. Please use a ballpoint pen to complete the crossword, and include a telephone number at which you can be reached during the daytime.



Name (Miss, Mrs, Ms, Mr)

Address

Telephone

I accept the rules and conditions of the Computer Weekly Crossword Competition.

Signed Date

- ACROSS**
1. Fearful, a Father needs assistance (6)
 5. Doctor attending wrecked ship is spiritless (6)
 8. A stitcher and linen-edger, very versatile (7-6)
 11. To become discouraged, fall in love? (4,5)
 12. The girl to pester endlessly on the way back (5)
 13. A solo ruler makes appearance in gymkhana (4)
 14. Gets rid of nudes, birds misbehaving (10)
 18. Going on strike, end courting? (7,3)
 19. The top one in a thousand? Just the opposite! (4)
 21. Archaeologists finally obtaining tough fragment of pottery (5)
 23. Toss with ship around start of day, utterly gloomy (5-4)
 24. A children's curse, French, rucking into sharp fruit concoction (6,7)
 26. Continue nursing a fibrous tissue (6)
- DOWN**
2. With Her Majesty inside, pulls grass (6)
 3. Anticipate collapse of store in the autumn (9)
 4. Come down in flames (6)
 6. Dig garden that's grown wild - it's humiliating (9)
 7. Assembled to embrace an artist (5)
 9. Defendant's answer certain to give delight (8)
 10. Rise aloft, circling Lake of the Sun (5)
 15. Are really fond of sage, and act in the same way (2,8)
 16. An official of the House - one at the Dispatch Box? (3,7)
 17. Liberal in giving oil, but firm in a way (9)
 18. Oriental singer going about the North is a spellbinder (9)
 19. Exposed to buffeting, gain land, ultimately, and pull up (8)
 20. Give a song about Henry having a fling (6)
 22. Dad lifted one quickly (5)
 25. Suffering, when about fifty, is easy to see (5)

RULES AND CONDITIONS

1. Back competitors may submit no more than one entry.
2. The competition is open to all readers of Computer Weekly with the exception of the staff of IPC Business Press Ltd, any printers employed by them or the near relatives of any such staff.
3. The solution of each puzzle will normally be published in the issue three weeks after the puzzle has been published.
4. Winners will receive their prizes during the month following the competition.
5. The decision of the editor on the interpretation of the rules and conditions and on all matters shall be final. No correspondence will be entered into.

MICRO COMPUTER ENGINEERS

£Neg plus company car/Surrey

Due to rapid expansion we are seeking a micro-computer engineer. The successful applicant will have appropriate experience in the maintenance and repair of computer equipment. He/she will have a positive personality and be able to operate effectively with minimal supervision. A good salary will be commensurate with experience.

For further details please contact
Miss S. Galbraith
Ferguson Computers Ltd
4 Pyrford Road
West Byfleet
Surrey
Tel: (09323) 48330

NEW HONEYWELL IDS/TDS OPPORTUNITY

Roadline UK Limited, Britain's largest road-based parcels carrier, currently involved in a redesign of information systems at their central London office, requires a

PROGRAMMER

£7,300 to £9,000 (depending on experience)

If you have 1-2 years' Level 64 or 66 experience, joining Roadline's DP team offers a quick career move into a high level of responsibility in a small project team environment. You will be working with TDS and IDS with opportunity to develop your existing skills in both, and training will be provided if required.

Usual fringe benefits of a large company apply including good contributory Pension Scheme, 5 weeks holiday and excellent Career Prospects.

If you like the idea of a new challenge with good rewards apply in writing with full personnel and career details to G. E. Jenkins, Director of Personnel, Roadline UK Limited, The Merton Centre, 46 St Peter's Street, Bedford MK40 2UB.

**Senior Computer Operator**

Salary Grade AP3/4: £5,973-£7,545 plus 12 1/2% Shift Allowance

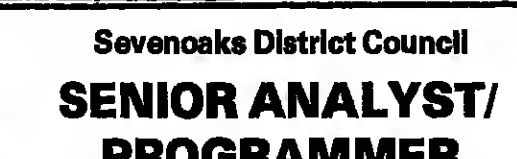
Applications are invited for the above post in the Borough Treasurer's Department from persons with at least two years' experience in computer operating. A two-shift system is in operation covering the period 7 a.m. to 9 p.m. Monday to Friday.

The installation comprises a 512K Univac 80/30 using 0/2 operating system with a communications network and key to diskette data preparation. Univac experience, while not essential, would be an added advantage.

Good conditions of service apply and include a shift working supplement, 20 days' annual leave, car loan facilities and a pleasant working environment with staff canteen.

Application forms and job description available from the Personnel Officer, Council Offices, Farnborough Road, Farnborough (Tel: Farnborough 618222, Ext. 211), to be returned by 10th December, 1982.

(1881)

**Sevenoaks District Council SENIOR ANALYST/PROGRAMMER**

Salary Scale £9,675 - £10,734 inclusive

The Council runs a 256K CMC Reality system, currently with 125 meg. of disk, and is looking for a person with proven experience in a senior analyst/programming role in either the public or private sector.

The post holder will be required to control the hardware, software and staff resources available to achieve the transfer of all the Council's financial systems from an ICL mainframe to the CMC mini, and to investigate, plan and implement other systems as required. He/she must have experience of implementing at least one major system, and show ability to communicate with staff at all levels.

Generous relocation expenses are available in approved cases, covering removal, legal and associated costs.

Application Forms and Job Description can be obtained from the Personnel Section, Council Offices, Argyle Road, Sevenoaks, Kent, TN13 1HG (Tel: Sevenoaks 489711 Ext. 230).

Closing date: 17 DECEMBER, 1982. (1787)

BANKING ANALYST/PROGRAMMER

CIRCA £10,000

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150 Regent Street London W1R 5FA

Tel: 01-439 6288

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(1788)

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£5873 - £6093

This post is based in the Urban Traffic Control group at Brotherton House. Leads to undertake duties which include assisting in software maintenance of the data base of the UTC computer, other programming work of the Department and related engineering activities.

Candidates should have HTG or equivalent. Applications welcome from disabled people.

Application forms from the Directorate of Traffic, Highways and Engineering, Room 228, County Hall, Wakefield WF1 3QH to be returned by 17 December 1982. (Please quote ref TP34 003).

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Cobol Programmers

with an interest in micros

Two Cobol programmers are required to join the small systems division of BIS Software Limited. You will be involved in the specification and writing of financial applications programs using advanced 16-bit micros, and will have the opportunity to become involved in the Unix operating system and to learn "C". Minimum requirements are for 2 years' Cobol programming in a commercial environment. A knowledge of Unix and "C" would be helpful, but is not essential. Successful candidates will receive a competitive salary and have the opportunity to work throughout the world.

These positions are London based, but opportunities for interesting overseas travel may arise if desired.

Please apply to Trisha Robinson, Personnel Officer, at the address below:

BIS Software Limited
York House,
199 Westminster Bridge Road,
London SE1 7UT
Telephone 01-928 3551

**MANAGEMENT & EXECUTIVE SELECTION**

telephone 01-637 9611

Suite 201/6 Albany House
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An excellent sales performance by this major manufacturer results in a requirement for further field engineers. With products encompassing a range from micros through to 32 bit mini systems an interesting and varied career opportunity is on offer. It is important that applicants can demonstrate the ability to satisfy customers in both technical and commercial environments. In addition candidates will possess 18 months' experience fault diagnosing to component level. An excellent compensation package is provided which includes a basic salary to £8.5K + O/T + S/BY + L/W + CAR.

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Progressive expansion of the field service team has created vacancies for engineers to maintain a major manufacturer's mini-based systems in London and the Midlands. Previous hard-disc experience and component level ability are essential whilst data comm knowledge would be an advantage. This successful British Company will provide full training, an excellent benefits package including BUPA cover and long term career prospects for the right person.

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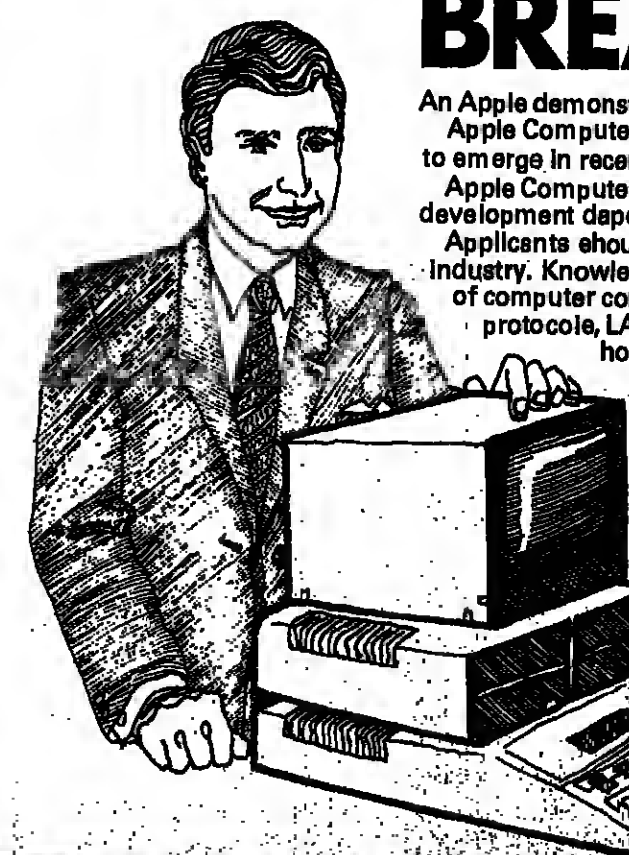
This is a ground floor opportunity for an experienced field engineer to achieve rapid career growth within a developing company. Our client, a manufacturer of a multi-user micro-based business system, has received the enthusiastic approval of the entire business and financial world. Presently they seek a mature individual to build and lead an engineering division in the Southern region. You will require sound technical skills coupled with the enthusiasm and drive to create a cohesive team.

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An Apple demonstrated to Sir Isaac Newton the principles of gravity. Apple Computers are demonstrating to corporate managers the most exciting concept to emerge in recent times. Personal computing power. Apple Computers are seeking an individual to join their National Accounts sales development department. Applicants should have at least five years' experience in the data processing industry. Knowledge of batch and interactive systems is essential, as is knowledge of computer communications, mainframe/mini computer communications protocols, LANs and private viewdata systems. Experience in the software house, systems house, bureau commercial OEM environment would be considered a distinct advantage. In addition to the above. As a forward thinking, fast growing organisation, we are also looking strategically at our professional manpower requirements which might well include areas such as marketing, hard and software technical support/training and technical orientated service engineers. Should you be planning your career for the future, you may well be interested in applying for one of these long-range positions.

For further information please telephone Tony McGrath on 01-637 9611.

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